

School of Allied Health

The Development and Evaluation of the Feasibility, Appropriateness and Preliminary Effectiveness of a School-Based Intervention to Improve the School Participation and Connectedness of Primary School Students on the Autism Spectrum and their Typically Developing Peers.

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Doctor of Philosophy

of

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Author's Declaration

I, Amy Hodges, hereby declare that the work presented within this thesis contains no material previously published by any other person except where due acknowledgement has been made. This thesis contains no material which has been accepted for the award of any other degree or diploma in any university.

The research presented and reported in this thesis was conducted in accordance with the National Health and Medical Research Council National Statement on Ethical Conduct in Human Research (2007) – updated March 2014. The proposed research study received human research ethics approval from the Curtin University Human Research Ethics Committee (EC00262), Approval Number #2016-0150.

Signature:

Date: 7th September 2021

Statement of Contributors

Supervisors

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- Associate Professor Annette Joosten
- Associate Professor Helen Bourke-Taylor

Research Assistance

Professor Renee Speyer who assisted with the systematic database search; Katina Swan who assisted with abstract screening and methodological quality ratings; Dr. Cally Kent who completed blinded observational ratings of classroom participation; Dr. Richard Parsons who assisted with planning of statistical analyses; Dr. Yu-Wei Chen who assisted with analysis of Experience Sampling Method (ESM) data.

Intervention Development

Bianca Milacic who illustrated characters and comic-strip style illustrations; Western Australian Screen Academy at Edith Cowan University who assisted in developing interactive video resources; Stuart Ridgway who designed the interactive PDF intervention manual.

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Signed: Amy Hodges Date: 7th September 2021

Signed: Reinie Cordier Date: 7th September 2021

Abstract

Many students on the autism spectrum experience school participation restrictions. Persistent challenges participating at school can lead to students feeling like they do not belong and are not included at school. Despite evidence emphasising the significant impact reduced school participation and connectedness has on student outcomes, there is a paucity of interventions aimed specifically at increasing students' participation and experience of connection at school, particularly for primary school students on the autism spectrum.

This research aimed to develop and evaluate the feasibility, appropriateness, and preliminary effectiveness of a school-based intervention that aims to improve the school participation and connectedness of primary school students on the autism spectrum and their typically developing peers. To address this aim, three phases of research were conducted, which were informed by the United Kingdom Medical Research Council (UKMRC) guidelines on the development of complex interventions.

Phase 1 (described in Chapters 2 to 5) involved establishing a theoretical base for the intervention and developing the intervention based on a series of studies. A theoretical Model of School Participation and Autism (MSPA) was constructed by integrating literature on autism with literature on school participation and postulating how characteristics of autism influence school participation and related intrinsic student constructs. Intervention research was also critically evaluated to identify intervention techniques that have been used and found to be effective in facilitating the school participation of students on the autism spectrum. The MSPA was imperative in defining constructs of interest to be targeted in the school-based intervention and helped to ensure the intervention was rooted in theory and evidence. A series of studies was then conducted to further inform and refine the development of the intervention and included:

- a. a systematic literature review on the psychometric properties of self-report school connectedness measures for students aged six to 14 years, to assist with the conceptualisation of school connectedness and the selection of measures in phase 3;
- b. focus groups with parents and educators to explore their perspectives on the school participation of primary school students on the autism spectrum and gain general recommendations regarding the intervention; and
- c. a nationally recruited 2-round Delphi study to obtain expert consensus on the application of a theoretical framework to primary school students on the autism spectrum, and gain recommendations regarding the content, delivery, and feasibility of the intervention.

Each step of this iterative research process offered valuable comments and revisions to the intervention. Engagement of consumers and stakeholders, including students on the autism spectrum, in co-designing and co-producing the intervention was crucial; helping to improve buy-in, increase research relevance and the usability of the intervention through improved context appreciation.

The resulting intervention, entitled *In My Shoes*, is a manualised, peer supported school-based intervention designed to improve the school participation and connectedness of students on the autism spectrum and their typically developing peers aged between 8 and 10 years. *In My Shoes* includes standardised online professional learning and face-to-face or online support for teachers and school leadership staff; teacher-led whole-class lesson plans; peer training for selected peers; activity ideas to incorporate key messages across the whole-school and weekly parent information handouts and opportunities for parents to participate in the program. The core concept of the program, ‘*look, think, decide*’, teaches perspective taking and social problem-solving skills by helping students to recognise body clues (i.e., non-verbal signals such as posture, facial expressions and hand gestures) and how to use these

to deduce what someone else might be thinking and feeling so that they can decide on the best course of action to help peers participate and feel included.

Phase 2 (described in Chapter 6) involved trialling whole-class worksheets with typically developing students for comprehensibility, relevance and comprehensiveness and seeking online feedback from parents and educators on parent information handouts and the intervention manual respectively. Intervention resources were revised based on the feedback received. This phase was integral in identifying and refining components of the intervention that led to improved outcomes in phase 3.

Phase 3 (described in Chapter 7) involved evaluating the feasibility, appropriateness and preliminary effectiveness of *In My Shoes* with 10 students on the autism spectrum and their typically developing peers across eight mainstream year 3 and 4 classrooms in Perth, Western Australia (WA). Changes in the classroom participation and subjective experiences of students on the autism spectrum and students' self-report school connectedness were evaluated pre-post intervention using a range of outcome measures. All students who participated in the feasibility study reported statistically significant higher levels of engagement, intrinsic motivation to participate at school, and understanding of autism post intervention. Students on the autism spectrum were observed to interact more with peers, display less inattentive behaviours and report fewer difficulties in the classroom post intervention.

The importance of school participation and connectedness for students' social, emotional, and academic development is undisputed. The feasibility, appropriateness and preliminary effectiveness of a novel, peer supported, curriculum embedded school-based intervention that aims to improve the school participation and connectedness of primary school students on the autism spectrum and their typically developing peers was evaluated in this study. Study findings are encouraging; suggesting *In My Shoes* is a feasible and

appropriate intervention and shows promise in improving the self-report school engagement of *all* student participants, as well the classroom participation and subjective school experiences of students on the autism spectrum. The research provided useful insights into ways the intervention can be adapted to better equip teachers and schools to implement parent and whole-school components. Several recommendations for future research were also made based on study findings, such as measuring outcomes mid-term to mid-term to minimise teacher burden and the impact of environmental factors (e.g., availability of school resources in the first and final week of term) on study findings. Conducting research that aims to foster participation by improving students' interpersonal empathy and ability to display behaviours that help others participate and feel included at school, is a step forward in minimising the long-term documented implications of reduced school participation and connectedness on student outcomes; thus helping to promote a more supportive and inclusive community that is understanding, accepting and supportive of differences.

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They say it takes a village to raise a child, but I know from my own experience that it also takes a village to support a PhD student; particularly one trying to start and raise a family at the same time. I would like to acknowledge and extend my sincere gratitude and appreciation to those who supported me throughout my candidature and who made this research possible.

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Dedication

To Jackson and Amelia – see the world from a different perspective

Love Mum



List of Publications

This doctoral thesis consists of the following publications:

1. Hodges, A., Cordier, R., Joosten, A., Bourke-Taylor, H., & Speyer, R. (2018). Evaluating the psychometric quality of school connectedness measures: A systematic review. *PLoS ONE*, 13(9), e0203373. doi: <https://doi.org/10.1371/journal.pone.0203373>
2. Hodges, A., Joosten, A., Bourke-Taylor, H., & Cordier, R. (2020). School participation: The shared perspectives of parents and educators of primary school students with Autism Spectrum Disorder. *Research in Developmental Disabilities*, 97, 103550. doi: <https://doi.org/10.1016/j.ridd.2019.103550>
3. Hodges, A., Cordier, R., Joosten, A., & Bourke-Taylor, H. (2021). Expert consensus on the development of a school-based intervention to improve the school participation and connectedness of elementary students on the autism spectrum: A Delphi study. *Focus on Autism and Other Developmental Disabilities*, 1-11. doi:<https://doi.org/10.1177/10883576211030483>
4. Hodges, A., Cordier, R., Joosten, A., & Bourke-Taylor, H. (In press). Closing the gap between theory and practice: conceptualisation of a school-based intervention to improve the school participation of primary school students on the autism spectrum and their typically developing peers. *Journal of Autism & Developmental Disorders*.
5. Hodges, A., Cordier, R., Joosten, A., Bourke-Taylor, H., & Chen, Y. (Under review). Evaluating the feasibility, fidelity, and preliminary effectiveness of a school-based intervention to improve the school participation and feelings of connectedness of elementary school students on the autism spectrum. *PLoS ONE*.

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List of Presentations

Research findings contained in this thesis have been presented, in part, at the following national and international conferences and at a paediatric occupational therapy interest group:

- Hodges, A., Cordier, R., Joosten, A., Bourke-Taylor, H., & Speyer, R. (2018, December). A systematic review on the psychometric properties of self-report school connectedness measures – implications for measurement with students with Autism Spectrum Disorders [Paper presentation]. Australasian Society for Autism Research Conference 2018, Queensland, Australia.
- Hodges, A., Cordier, R., Joosten, A., Bourke-Taylor, H., & Harris, C. (2019, June). The development of a school-based intervention to improve the school participation and connectedness of students with Autism Spectrum Disorder in mainstream primary schools [Poster presentation]. Occupational Therapy Australia Conference, 2019, Sydney, Australia.
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- Hodges, A. (2020, June). *In My Shoes – Look, Think, Decide. See school from a different perspective* [Paper presentation]. Developmental Occupational Therapy Western Australia Inc. paediatric interest group 2020, Perth, Australia.

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List of Abbreviations

AAWA	Autism Association of Western Australia
ADHD	Attention Deficit Hyperactivity Disorder
ASD	Autism Spectrum Disorder
BASC 3 – SOS	Behaviour Assessment System for Children – Third Edition Student Observation System
CSRG	Consumer and Stakeholder Reference Group
COVID–19	Coronavirus Disease 2019
DOT WA Inc.	Developmental Occupational Therapy Western Australia
ESM	Experience Sampling Method
fPRC	family of Participation and Related Constructs
HREC	Human Research Ethics Committee
MSPA	Model of School Participation and Autism
NDIS	National Disability Insurance Scheme
RCT	Randomised Controlled Trial
RTP	Research Training Program
SAS	Secret Agent Society
SD	Standard Deviation
SEI	Student Engagement Instrument
SEI – E	Student Engagement Instrument – Elementary
SEIFA	Social-Economic Indexes for Areas
UKMRC	United Kingdom Medical Research Council
WA	Western Australia

Key Definitions

Term	Definition
Autism	Autism is a lifelong neurodevelopmental condition characterised by persistent difficulties in social communication and restricted, repetitive patterns of behaviour and interests of activities as diagnosed by the Diagnostic and Statistical Manual of Mental Health Disorders (American Psychiatric Association, 2013).
Appropriateness	In context of intervention research, appropriateness refers to psychosocial aspects of an intervention and addresses questions related to the acceptability of the intervention by end users (Evans, 2003).
Consumer	A person who directly or indirectly makes use of the school-based intervention (e.g., parents and educators; Consumer and Community Health Research Network, 2017).
Educator	Educator encompasses all individuals with a teaching or education background such as teachers, learning support coordinators, school psychologists, deputy principals and principals.
Feasibility	In context of intervention research, feasibility refers to the impact an intervention has on its end user and the resources required to successfully implement the intervention; encompassing broader environmental issues related to implementation of the intervention (Evans, 2003).
Feasibility study	Conducting research that examines whether a study can be done (Orsmond & Cohn, 2015).

Term	Definition
Fidelity	In context of intervention research, fidelity refers to the degree to which an intervention has been delivered as intended (Bellg et al., 2004).
Inclusion	The practice or policy of providing equal access to opportunities and resources for people who might otherwise be excluded or marginalised, such as those who have physical or mental disabilities and members of other minority groups (Oxford Languages, 2021a).
Inclusive education	An approach to education whereby all people are valued and treated with respect with an influence on inclusive culture, policy and practice (Booth & Ainscow, 2002).
Neurodiversity	The range of differences in individual brain function and behavioural traits, regarded as part of normal variation in the human population used especially in the context of autistic spectrum disorders (Oxford Languages, 2021b).
Pilot study	“...smaller versions of the main study used to test whether components of the main study can all work together” (Orsmond & Cohn, 2015, p. 1).
School connectedness	The “...extent to which students feel personally accepted, respected, included, and supported by others in the school environment” (Goodenow, 1993, p. 80).
School participation	Participation is comprised of two essential components: “...attendance, defined as ‘being there’ and measured as frequency of attending, and/or the range or diversity of activities;

Term	Definition
Stakeholder	<p>and involvement, the experience of participation while attending” (Imms et al., 2016, p. 18). In the context of education, this means being actively engaged in activities, tasks and routines that are typical for students of that age in a given educational system, as well as a subjective feeling of belonging to, and being active in the school environment (Libbey, 2004).</p> <p>An individual or group of people that may have a key interest in the research (e.g., school aged service providers; Consumer and Community Health Research Network, 2017).</p>

Chapter 1: Introduction

The purpose of this research was to develop and evaluate the feasibility, appropriateness and preliminary effectiveness of a school-based intervention to improve the school participation and connectedness of primary school students on the autism spectrum and their typically developing peers. In this Chapter, I introduce the background to my research and the imperative to develop the school-based intervention. This information sets the stage for the framework that directed this research and the proposed theoretical Model of School Participation and Autism (MSPA) which guided the development of this intervention – *In My Shoes*. The MSPA can be used by other researchers seeking to develop and evaluate complex interventions to improve student school participation. I then conclude the Chapter with the overall aim and phase-based objectives of my research and an outline of the thesis.

Background to the Research

The origins of my research can be traced back to my work as an occupational therapist at the Autism Association of Western Australia (AAWA), a not-for-profit organisation that provides services to individuals on the autism spectrum and their families from early childhood through to adult life. I worked within a transdisciplinary team to provide comprehensive consultative services to support the individual needs of families and children on the autism spectrum in their home, school, and community environment.

In this role, I was exposed to the unique challenges experienced by students on the autism spectrum and their families in mainstream schools, as well as the teachers and school leaders that support them. Many parents of children on the autism spectrum reported their child experienced significant participation restrictions in mainstream school. These included difficulties: remaining calm and in a state for learning in the classroom; building and maintaining relationships; adapting and responding to change and transition throughout the school day; managing conflict in play; and working in groups and engaging in classroom

activities and routines. Many parents reported that, because of these challenges, their child experienced bullying and social isolation, often daily at school. Parents were concerned by their child's experiences and the long-term impact it could have on their lives including their child's ability to gain employment, have meaningful relationships, and maintain their mental health and wellbeing. Teachers expressed concerns about supporting students on the autism spectrum in their class, including simultaneously meeting the needs of students on the autism spectrum and their typically developing peers, a lack of time and resources to modify the curriculum, and implement recommendations from specialist service providers. Many teachers complained about the number of service providers coming into the classroom, particularly with the introduction of the National Disability Insurance Scheme (NDIS) in Australia in 2013, which provides individualised funding to eligible individuals with a disability to access services of their choice (National Disability Insurance Agency, 2021). Teachers described feeling overwhelmed with recommendations, reporting they were often individualised to student(s) on the autism spectrum, which made them difficult to prioritise and incorporate into the curriculum.

These experiences piqued my interest in inclusive education and autism. I was motivated by the desire to see *all* students participate to their fullest potential and to feel accepted, respected and included in their school environment. I wanted to contribute towards the evidence base of autism by developing an innovative school-based intervention that aimed to improve the school participation and connectedness of students on the autism spectrum. I wanted to make a deliberate decision to involve *all* students in learning (not just those on the autism spectrum) to help shift perceptions that students' school participation occurs in isolation. More accurately, it is a collective effort of all individuals within the school environment to help others participate and feel included at school. From my clinical experience, I knew it was important for the intervention to be feasible from teachers'

perspectives by adopting a whole-class approach and by embedding the intervention in the Australian curriculum to minimise any additional burden on teachers in an already overcrowded curriculum.

Rationale for the Study

Inclusive education presents itself as one of the most controversial issues within the realm of education. According to the *Salamanca Statement and Framework for Action on Special Needs* (UNESCO, 1994), the *Disability Discrimination Act* (Commonwealth of Australia, 1992) and the *Disability Standards for Education* (Commonwealth of Australia, 2005) *all* children have the right to access the education of their choice and should not be discriminated against on the grounds of their disability. Furthermore, educational systems are required to make ‘reasonable adjustments’ to ensure students with disabilities are included (Commonwealth of Australia, 2005). Since the 1980s, “...the internationally accepted philosophy of education has been to work towards a more inclusive approach to education” (Chambers & Forlin, 2021, p. 1). As a result, a number of positive changes to policy and practice have occurred in Australia. For example, legislative changes to teaching education standards to ensure all pre-service teachers are provided with training to support students with disabilities (Australian Government, 2013) and the introduction of a national needs-based funding system, which allows schools to access additional tailored supports for students with additional needs (Boyle & Anderson, 2020).

While there has been positive change toward the inclusion and provision of supports for students on the autism spectrum, international and Australian research suggests students on the autism spectrum continue to experience significant school participation restrictions (Harrington, 2014; Saggars et al., 2016). For example, many adolescent students on the autism spectrum under achieve relative to their cognitive abilities (Ashburner, Ziviani, & Rodger, 2008); have higher rates of absenteeism, suspension and exclusion from school

(Barnard, Prior, & Potter, 2000; Osler & Osler, 2002); spend less time interacting and have lower quality of interactions with peers (Sigman et al., 1999); and require a higher level of one to one assistance from aides than peers (Bauminger & Kasari, 2000). Collectively, these findings suggest that instead of receiving an inclusive education, students on the autism spectrum often experience exclusion.

Epidemiological evidence suggests the prevalence of autism is increasing worldwide (Chiarotti & Venerosi, 2020) and, as a result, there are increasing numbers of students on the autism spectrum being educated in mainstream schools. According to the Australian Bureau of Statistics (2012), at least 70% of Australian students on the autism spectrum are educated in mainstream settings. Understanding how students on the autism spectrum can be supported to participate in mainstream settings therefore is of utmost importance. The construct of participation, however, is complex and the forces that drive and shape student participation are multifaceted. The definition of participation and related concepts will now be explored and applied to students on the autism spectrum in mainstream schools.

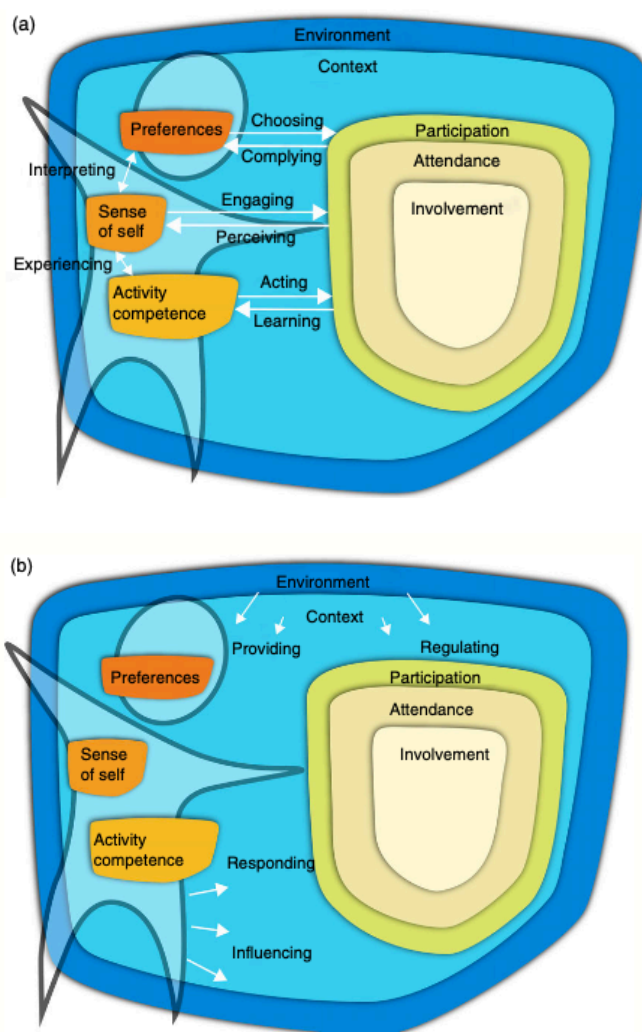
The Complex and Multi-Dimensional Construct of Participation

Many researchers describe participation as multi-dimensional or as a family of constructs (Granlund, 2013; Imms et al., 2015; King, 2013). Lack of clarity and consistency in the definition of participation and related concepts has led to "...varied interpretations of the construct, and therefore, varied approaches to measurement, leading to imprecision and confusion in what is found and reported" (Imms et al., 2015, p. 29) in intervention research. For the purposes of this research, the family of Participation and Related Constructs (fPRC; see Figure 1), developed by Imms and colleagues (2016), will be used to explore the construct of participation and applied to students on the autism spectrum in mainstream schools. The fPRC was chosen as it is particularly relevant to the current research; developed following a systematic literature review of language and definitions used in intervention research that aim

to improve the participation of children with disabilities (Imms et al., 2015). The fPRC is an innovative conceptual framework that is widely used to support participation-based research and practice and resonates with occupational therapy approaches (Imms et al., 2016).

Figure 1

family of Participation-Related Constructs: (a) Person-Focused Processes, (b) Environment Focused Processes. Reprinted From “Participation, Both a Means and an End: A Conceptual Analysis of Processes and Outcomes in Childhood Disability” by C. Imms and Colleagues, 2016, Developmental Medicine & Child Neurology, 59, 16-25. Copyright [2016] by Mac Keith Press. Reprinted with Permission (see Appendix A).



According to the fPRC, participation is comprised of two essential components: “...attendance, defined as ‘being there’ and measured as frequency of attending, and/or the range or diversity of activities; and involvement, the experience of participation while attending” (Imms et al., 2016, p. 18). In the context of education, this means being actively engaged in activities, tasks and routines that are typical for students of that age in a given educational system, as well as a subjective feeling of belonging to, and being active in the school environment (Libbey, 2004). Merely being present (or attending) a mainstream school does not lead to participation and is not indicative of successful inclusion (Symes & Humphrey, 2012).

Based on the fPRC, several intrinsic factors can influence and, in turn, are influenced by participation (Imms et al., 2016). Intrinsic factors impacting participation include – *activity competence* (i.e., the ability to execute an activity to an expected standard; Imms et al., 2016), *preferences* (i.e., interests or activities that hold meaning or are of value; Imms et al., 2016) and *sense of self* (i.e., personal perceptions related to students confidence, satisfaction, self-esteem and self-determination; Imms et al., 2016). These factors are considered antecedents to, and consequences of, participation – they influence future participation and are influenced by past and present participation (Imms et al., 2016). For example, to participate in an activity at school, students must have a degree of interest; however, through participation students’ interest may increase or they may develop new interests that hold meaning or are of value to them.

In the school context, another intrinsic factor that can impact participation is students’ experience of connection to their peer group and school. A growing body of literature suggests students’ sense of school connectedness is a protective factor to mental and emotional wellbeing, and is considered a predictor as well as an outcome of school participation (Carrington et al., 2021; Ciani, Middleton, Summers, & Sheldon, 2010;

McNeely, Nonnemaker, & Blum, 2002; Shochet, Dadds, Ham, & Montague, 2006). Students who have a stronger sense of school connectedness are more likely to engage in socially appropriate behaviours, have higher levels of self-esteem, obtain better grades, display acceptable conduct at school, and are more likely to graduate than students with a lower sense of school connectedness (Finn & Rock, 1997; Fredricks, Blumenfeld, & Paris, 2004; Newman, Wehlage, & Lamborn, 1992). Therefore, for the purposes of this research, the concept of school connectedness will be explored as an *additional intrinsic student factor* impacting student school participation. School connectedness is referred to interchangeably in the literature as ‘belongingness’, ‘membership’ and ‘connectedness’ and is defined as “...the extent to which students feel personally accepted, respected, included, and supported by others in the school environment” (Goodenow, 1993, p. 80). The impact of characteristics of autism on intrinsic student factors (i.e., activity competence, preferences, sense of self and school connectedness) and students’ school participation will now be explored.

Participation of Students on the Autism Spectrum in Mainstream Schools

Activity Competence. Autism is a lifelong neurodevelopmental condition that can impact the development and performance of several skills required to successfully navigate the school environment and participate at school (Saggers, Hwang, & Mercer, 2011; Saggers et al., 2016). While students on the autism spectrum may require support, assistance, adjustment or accommodation with academic learning, a recent Australian educational needs analysis surveying 1,468 educators, specialists, parents and students on the autism spectrum identified that the social, emotional and behavioural needs of students play a far more significant role in educational settings and have a more significant impact on students’ learning and participation (Saggers et al., 2016). For example, difficulties with social communication can lead to school participation restrictions such as difficulty establishing and maintaining friendships, engaging in social interactions, expressing needs and wants and

asking for help at school. Hyper or hypo reactivity to sensory input can also impact students school participation with sensory preferences such as noise, touch, and the ability to stay still identified as significantly impacting the learning and performance of students on the autism spectrum (Saggers et al., 2016). Furthermore, impaired executive functioning skills, such as problem solving and attention, can result in students having difficulty adapting their behaviour, following instructions, and being part of a group at school (Torrado, Gomez, & Montoro, 2017; Zingerevich & LaVesser, 2009).

Preferences. Students on the autism spectrum can have intense interests and a preference for sameness, which can make it difficult for students to participate in an activity that is not an area of interest or adjust when there is an unexpected change (Koegel, Singh, & Koegel, 2010; Saggers et al., 2016). This can be particularly problematic in the school environment, where there is often limited flexibility and choice in the way curriculum is delivered. Research that has explored links between the preferences of students on the autism spectrum and their impact on students' school participation have largely used mixed method case study designs to understand students' preferences, or are intervention studies that have used multiple baseline design with the aim of improving student motivation in the classroom (Koegel et al., 2010; Wood, 2021). These studies have inferred that students who have choice are more engaged at school, and students who do not have choice are less engaged, and therefore, less likely to participate at school. Incorporating students' interests into school activities has reported positive effects for students learning and participation, including improved curriculum access (Hesmondhalgh & Breakey, 2001), increased participation in after-school clubs (Jones et al., 2008), and improved social communication skills (Winter-Messiers, 2007). Furthermore, when students preferences are considered students are able to "... relax, overcome anxiety, experience pleasure and make better sense of their world"

(Gunn & Delafield-Butt, 2016, p. 411), which can positively impact their emotional wellbeing.

Sense of Self. Students on the autism spectrum can display behaviours that can be perceived negatively by school peers and teachers, due to differences in the way they perceive the world, how they think and behave, and how they communicate and interact with others (American Psychiatric Association, 2013). For example, students may yell, hit, or throw items when experiencing a meltdown or may disrupt their peers by talking or moving around the classroom inappropriately to seek sensory input during a lesson. Consequently, peers and teachers may punish or ignore students' behaviour, causing students to experience frustration and a diminished sense of self (Laurent & Rubin, 2004). Findings from a case-control study by Wainscot and colleagues (2008) exploring the in-school social relationships of secondary school students on the autism spectrum, highlighted the often negative perception students on the autism spectrum have of themselves. Approximately 90% of the 30 students on the autism spectrum involved in the study reported that they felt disliked by someone at school (Wainscot et al., 2008). Other factors, such as lack of structure and predictability in the school environment and students' awareness of limited social relationships and difficulties connecting with peers, can also contribute to students feeling less satisfied and confident at school, which can lead to a negative sense of self (Humphrey & Lewis, 2008).

School Connectedness. Persistent challenges participating at school can lead to students on the autism spectrum feeling like they do not belong and are not supported at school. Studies exploring the school experiences of students on the autism spectrum in mainstream schools show inconsistent results (Harrower & Dunlap, 2001). Some studies report students on the autism spectrum are accepted by their peers (Frederickson, Simmonds, Evans, & Soulsby, 2007) and teachers (Robertson, Chamberlain, & Kasari, 2003) and that their perception of being a member of their peer group and school is not significantly different

to peers (Frederickson et al., 2007). Conversely, other studies report that students on the autism spectrum often feel lonelier and less accepted (Bauminger & Kasari, 2000; Chamberlain, Kasari, & Rotheram-Fuller, 2007) and are more likely to experience bullying than their peers (Humphrey & Lewis, 2008). For example, a mixed methods study by Kasari and colleagues (2011) examined self, peer and teacher reports of the social relationships of 60 students on the autism spectrum. Compared with a matched sample of typically developing students in the same classroom, students on the autism spectrum were more likely to be on the “... periphery of their social networks, reported poorer quality of friendships and had fewer reciprocal friendships than peers” (Kasari et al., 2011, p. 533). Students’ perception of the challenges they experience connecting with peers and teachers was highlighted in a study by Falkmer and colleagues (2012) involving 22 students on the autism spectrum. Students in this study reported feeling “...more bullied, less liked, less involved in interaction, less understood by teachers and more insecure in the school environment compared to peers” (Falkmer et al., 2012, p. 199).

These findings are concerning as consistent evidence from controlled trials, longitudinal and cross-sectional research indicates a sense of school connectedness is an important protective factor to mental and emotional wellbeing (Libbey, 2004) and is linked to academic success, positive affect, high self-esteem, and life satisfaction (Bonny, Britto, Klostermann, Hornung, & Slap, 2000; You et al., 2008). Limited school connectedness in the early schooling years has been linked to increased engagement in risk taking behaviours such as smoking, marijuana use, alcohol consumption and sexualised behaviour in later schooling (Chapman, Buckley, Sheehan, & Shochet, 2013; Connell, Spencer, & Aber, 1994; Maddoz & Prinz, 2003; Resnick et al., 1997) and has been associated with clinical anxiety and depression during school and later life (McGraw, Moore, Fuller, & Bates, 2008; Shochet et al., 2006).

Extrinsic Factors that Influence, and are Influenced by, Students School Participation

Students spend more time at school than any other setting in their formative years, therefore the environment in which they learn can have a significant impact on their participation (Anaby et al., 2014; Colver et al., 2012; Eriksson, 2005). This is particularly true for students on the autism spectrum, where access to support, assistance, adjustment or accommodation in the *early* schooling years, has a positive impact on students' participation trajectory, while at school and into later life (Harrington, 2014; Parsons et al., 2011; Simpson, Boet-Ott, & Smith-Myles, 2003).

Batorowicz et al. (2016) conceptually separates environment into context (i.e., "...personal setting for participation that includes people, place, activity, objects and time"; Batorowicz et al., 2016, p. 1208) and environment (i.e., "...broad, objective social and physical structures in which people live"; Batorowicz et al., 2016, p. 1208). Contextual factors impacting the school participation of students on the autism spectrum, reported in the literature, include: lack of peer and teacher understanding, awareness and acceptance of autism (Barnard et al., 2000; Batten, Corbett, Rosenblatt, Withers, & Yuille, 2006; Brewin, Renwick, & Fudge Schormans, 2008; Jindal-Snape, Douglas, Topping, Kerr, & Smith, 2005; Kidd & Kaczmarek, 2010; Reid, 2011), teachers knowledge, attitudes and skills in supporting students with additional needs (Dinham, 1993; Vaz et al., 2015), parents relationship with and involvement in school, and parenting stress and demands (Emerson, Fear, Fox, & Sanders, 2012). Whereas, broader environmental factors impacting students' school participation reported in the literature include: lack of pre- and in-service autism specific training for teachers (Forlin, 2001; Forlin, Chambers, Loreman, Deppeler, & Sharma, 2013), poor school culture relating to the inclusion of students with additional needs (Harrington, 2014; Tissot & Evans, 2006), lack of available resources to provide tailored supports to students with

additional needs, and a lack of modification to the curriculum, social and physical environments (Batten et al., 2006).

These environmental factors can impact students' school participation directly (e.g., access to speech-to-text software may support a student who has difficulty with handwriting to participate in a persuasive writing lesson) and indirectly (e.g., students' perceptions of the persuasive writing lesson may be more positive and therefore the student may be more likely to participate when he/she has access to assistive technology and support). Students can also impact their environment through their participation at school. For example, teachers may incorporate strategies such as presenting a visual schedule and providing regular breaks to support students who experience meltdowns when there is an unexpected change in the curriculum. By incorporating these strategies, teachers may inadvertently improve the participation of other students in the class, as well as increase peer acceptance and culture towards the inclusion of students with diverse learning needs. These examples highlight the complexities of untangling intrinsic and extrinsic factors impacting students' school participation, and the importance of supporting students on the autism spectrum to participate in the context in which they learn.

Research Need

Despite evidence emphasising the significant impact reduced school participation and connectedness has on student outcomes, there is a paucity of interventions aimed specifically at increasing students' participation and experience of connection in schools (Allen, Vella-Brodrick, & Waters, 2016; Centers for Disease Control and Prevention, 2009), particularly for primary school students on the autism spectrum. Interventions exist that aim to support students on the autism spectrum to develop a particular set of *skills* (Mackay, Knott, & Dunlop, 2007; McConnell, 2002; Ostmeyer & Scarpa, 2012), with an expectation these skills will have a flow-on effect on students' participation and inclusion at school (Imms et al.,

2016). For example, in Australia, the Secret Agent Society (SAS) is a computer game pack and small group program for students on the autism spectrum aged between 8 and 12 years that was developed for use predominately in a clinic setting (Beaumont, 2015), but has been adapted for use in schools (Einfeld et al., 2018). SAS focuses on improving students social and emotional skills to help students develop and maintain friendships. However, SAS does not address a range of barriers students on the autism spectrum experience in their participation at school that are specific to the activities, tasks and routines present in the school environment. For example, how to recognise when a peer may be experiencing difficulty in the classroom and strategies that peers can use to help them participate or feel included, or how to manage emotions when things change at school such as when there is an excursion, a sports carnival or a relief teacher.

Many school-based service providers in Australia also offer skill-based therapy groups designed to develop social and emotional skills of school aged children on the autism spectrum (Autism Association of Western Australia, 2021; Autism Spectrum Australia, 2021). From clinical experience, these programs often lack a strong theoretical foundation and evidence base, fail to include students' peers, are facilitated by a clinician and/or involve students been taken out of their classroom. Literature highlights several disadvantages of utilising a pull-out method for intervention in schools, such as limiting teachers' capacity to individualise the curriculum and adopt strategies to support students on the autism spectrum, logistical issues with planning and coordination, and social issues with stigmatisation (Fernandez & Hynes, 2016; Hurt, 2012). Greater gains have been reported when universal programs are adopted that include students' peers (Bene, Banda, & Brown, 2014; Spooner, Baker, Harris, Ahlgrim-Dezell, & Browder, 2007). Interventions are available that aim to improve students' sense of school connectedness, however, these are largely tailored to adolescent students who are at risk of depression or anxiety, engage in risk taking behaviours

or who are from low socio-economic areas (McNeely et al., 2002; Shochet & Ham, 2012). Evidence-based interventions tailored specifically to primary school students are required, that immerse *all* students in learning that aim to improve students' interpersonal empathy and ability to display behaviours that help others participate and feel included at school. Including all students, not just those on the autism spectrum, in learning is imperative to move towards a more inclusive approach to education.

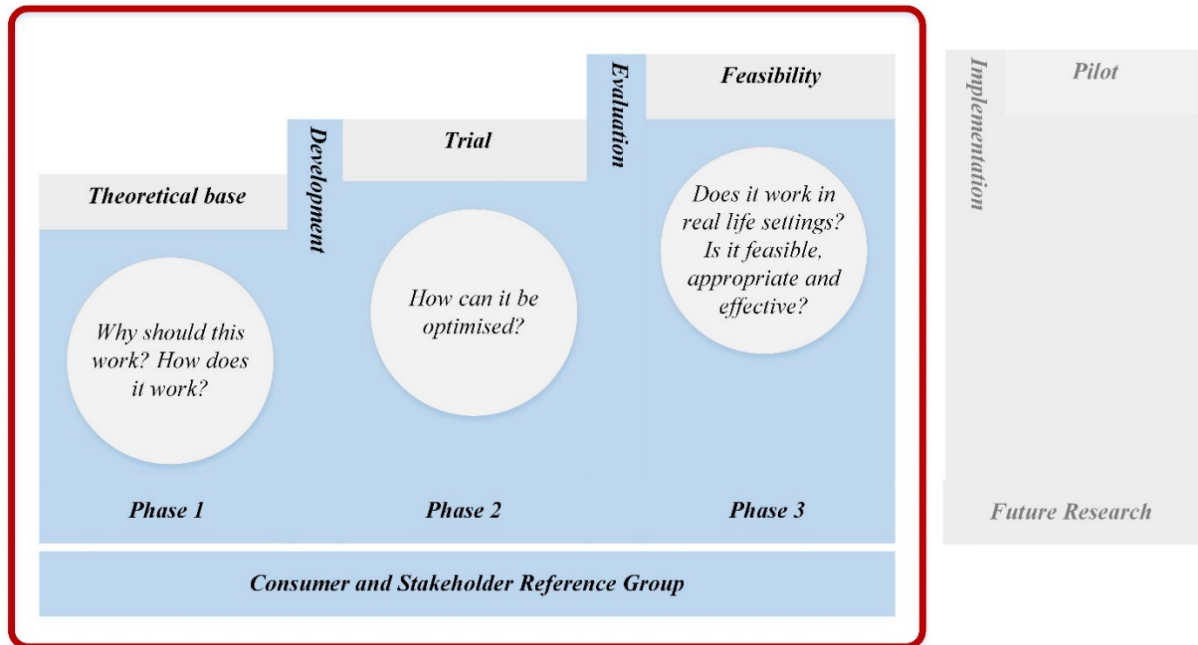
This research aims to develop and evaluate the feasibility, appropriateness and preliminary effectiveness of a teacher-led, peer supported, curriculum embedded, school-based intervention that aims to improve the school participation and connectedness of primary school students on the autism spectrum and their typically developing peers. The intervention aims to address intrinsic student constructs identified to effect change in student school participation (i.e., activity competence, preferences, sense of self, and school connectedness); focusing on making change at an environmental level by using a whole-class approach to teach students how to recognise and respond when a peer may be having difficulty in the classroom or playground. The intervention aims to create a more inclusive and supportive classroom environment that fosters participation by raising peer and teacher awareness and understanding of autism. Past research suggests involving peers in school-based interventions that focus holistically on supporting students' school participation, rather than developing a particular set of skills in isolation, is important to effect changes in the school participation and subjective experiences of students on the autism spectrum (Banda, Hart, & Liu-Gitz, 2010; Bene, Banda, & Brown, 2014). It is anticipated through improved participation, peer, and teacher awareness, understanding and acceptance of autism, that students on the autism spectrum will have an improved sense of belonging and feel like an active, included, respected member of the school community.

A Framework for Developing and Evaluating Complex Interventions

A complex intervention is one that includes: multiple active agents, multiple outcomes, targets multiple behaviours of the target population, uses a range of expert clinical skills, and involves a degree of flexibility or individualisation (Campbell et al., 2000). The school-based intervention that is the topic of this research is considered complex, due to the presence of several inter-connected components (i.e., professional learning for teachers, whole-class program, parent, and whole-school involvement) and intervention techniques (e.g., peer mediation, video modelling, and role play). The United Kingdom Medical Research Council (UKMRC) has assembled guidelines to provide a systematic, phase-based approach for researchers developing complex interventions (Campbell et al., 2000; Campbell et al., 2007), which have been used extensively to ensure a comprehensive approach to the development, implementation, evaluation, and dissemination of interventions. These guidelines were used in the current project to inform the design of the research to optimise the development of the intervention from conceptualisation to implementation in the school environment (see Figure 2).

Figure 2

A Framework for Developing and Evaluating Complex Interventions (adapted from Campbell et al., (2000))



The UKMRC guidelines have recently been updated to take into account the valuable experience that has accumulated since 2006 (Craig et al., 2013, 2019). While a stepwise hierarchical progression from theory to multi-site randomised controlled trials (RCTs) continues to be considered best practice, there is now recognition that within each phase there can be cyclical repetitions of this process. In this research, phase 1 refers to establishing a theoretical base for the intervention, which involved exploring relevant theory and conducting research to answer the questions – ‘*Why should this work?*’ and ‘*How does it work?*’ The school-based intervention was developed based on the findings of phase 1, and specific intervention resources were then trialled with students, educators and parents in phase 2 to answer the question – ‘*How can it be optimised?*’. Finally, phase 3 refers to a feasibility study, which involved answering the questions – ‘*Does it work in real life settings?*’ and ‘*Is it feasible, appropriate and effective?*’ I then refer to pilot studies (i.e., “...smaller versions of the main study used to test whether components of the main study can all work together”;

Orsmond & Cohn, 2015, p. 1) as a next step for future research (see Figure 2). In line with updated UKMRC guidelines, however, I acknowledge that several feasibility and pilot studies may be required to adequately test the intervention before larger scale evaluations such as RCTs are warranted (Craig et al., 2019). Delineating terminology used in this research is important, as “...without clarity researchers and reviewers may incorrectly expect rigorous examination of outcomes, when the researchers main goal is to assess the feasibility of a newly developed intervention” (Orsmond & Cohn, 2015, p. 170).

Theoretical Base – Why Should this Work? How does it Work?

Challenges often arise in the evaluation of complex interventions because researchers have not adequately defined and developed the intervention (Evans, 2003). A strong theoretical rationale is essential to clearly articulate how and why an intervention is likely to be effective (Campbell et al., 2000). Since the development of the original UKMRC framework, there have been several studies outlining limitations to the framework, recommending, for example, greater attention to early phase piloting and development work and greater use of insights provided by theory of complex adaptive systems (Craig et al., 2013, 2019). Applying these recommendations and the UKMRC guidelines, I began work on phase 1, which involved developing a theoretical Model of School Participation and Autism (MSPA) and conducting a series of studies to inform the development of the intervention.

I constructed the MSPA by integrating literature on autism with literature on school participation and postulating how characteristics of autism may influence school participation and related intrinsic student constructs (Falkmer et al., 2012; Harrington, 2014; Imms et al., 2016; Saggars et al., 2016). Intervention research was also critically evaluated to identify intervention techniques that have been used and found to be effective in facilitating the school participation of students on the autism spectrum (Vincent, Openden, Gentry, Long, &

Matthews, 2018; Watkins et al., 2015). This enabled me to illustrate the interactive processes between characteristics of autism and factors that promote school participation.

I then conducted a series of studies, using the MSPA as a theoretical foundation, to develop and further refine the school-based intervention. These included a systematic literature review to critically appraise the psychometric properties of available school connectedness measures, focus groups with parents and educators to explore their perspectives of the school participation of primary school students on the autism spectrum and gain general recommendations regarding the intervention, and a Delphi study to obtain expert consensus on the application of the fPRC to students on the autism spectrum and the content, delivery and feasibility of the intervention.

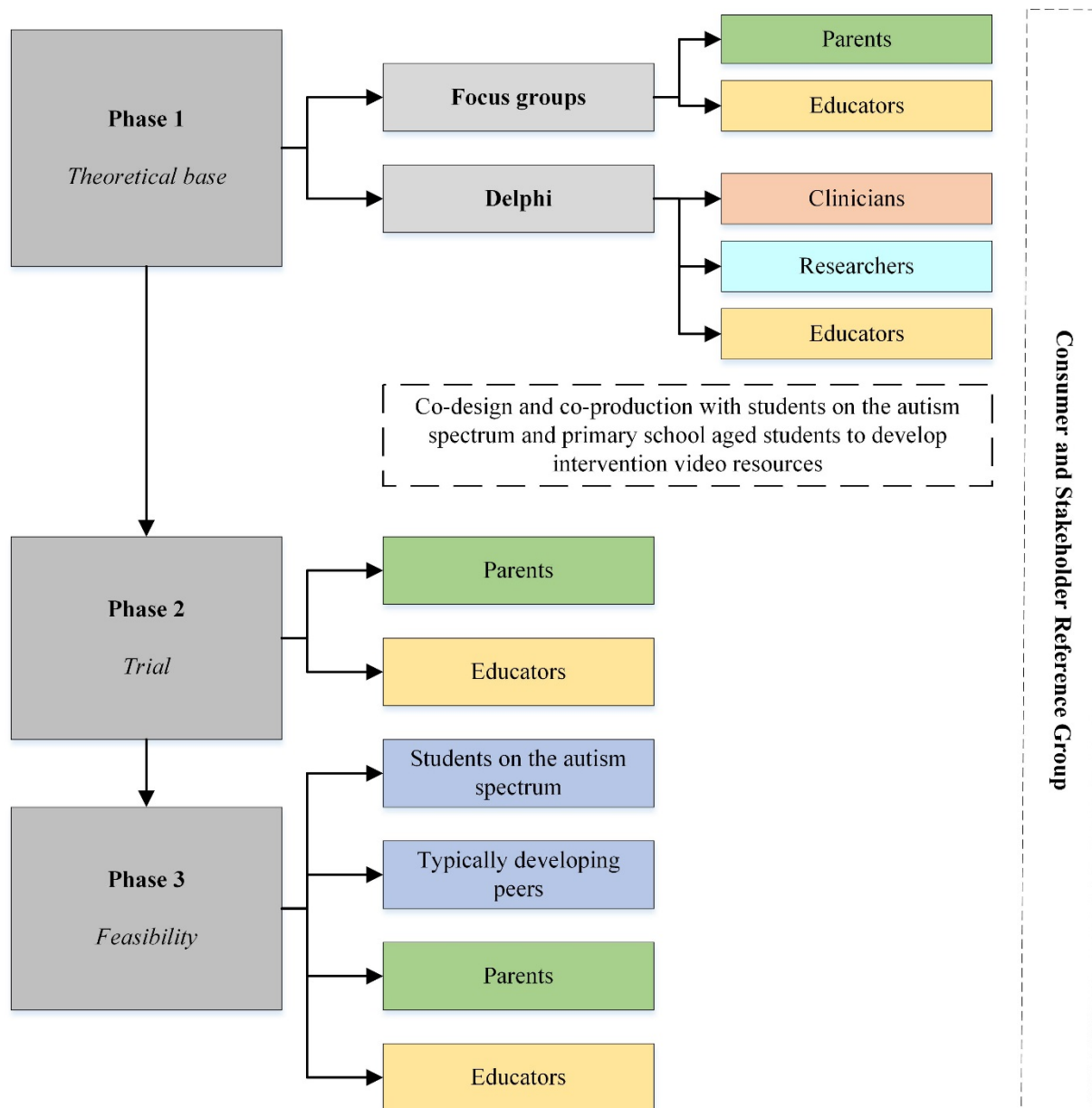
Ethics approval was obtained from the Human Research Ethics Committee (HREC) at Curtin University (HREC2016-0150) and permission was granted from relevant schooling bodies such as Catholic Education Western Australia prior to any data collection (see Appendix B). Research findings were used to develop and further refine the intervention until it was ready to trial with students, parents, and educators in phase 2.

Engaging Consumers and Stakeholders Throughout the Research. For the purposes of this research, a consumer refers to a person who directly or indirectly makes use of the school-based intervention (i.e., parent, educators), whereas a stakeholder refers to an individual or group of people that may have a key interest in the research (i.e., school aged service providers; Consumer and Community Health Research Network, 2017). There is substantial evidence outlining the benefits of meaningful and genuine engagement of consumers and stakeholders in research including improved relevance of research to consumer needs, greater accountability, improved quality and outcomes, more effective research translation and improved public confidence in research (Bombard et al., 2018; Todd & Nutbeam, 2018). The *Working Together: Mental Health and Alcohol and Other Drug*

Engagement Framework 2018 – 2025 (2018) encourages researchers to move from a methodological approach of doing *to* (i.e., informing, educating), and doing *for* (i.e., consulting and involving) to doing *with* (i.e., co-designing and co-producing; Government of Western Australia, 2018). Applying guidelines from the *Engagement Framework* (2018), consumers and stakeholders were not only consulted and involved in the conceptualisation of the intervention (e.g., via exploration of parent and educator perspectives in focus groups and expert opinions in the Delphi) but also involved in co-designing and co-producing intervention resources, data collection procedures and implementing and evaluating the intervention in the school environment (see Figure 3).

Figure 3

Schematic Illustration of Consumer and Stakeholder Involvement Throughout the Research



A consumer and stakeholder reference group (CSRG) was formed prior to the commencement of phase 1 and was consulted throughout all phases of the research (see Figure 3). The CSRG comprised of two parents of primary school students on the autism spectrum, an occupational therapist, speech pathologist, manager of a school aged therapy service and deputy principal of a mainstream primary school in the Perth metropolitan area in Western Australia (WA). In the beginning, I met with the group to ask more general questions

relating to the design of the research and the readability of participant information sheets. As the research progressed, I met with individual members of the reference group on a need's basis. The utilisation of a CSRG helped to understand consumers' and stakeholders' perspectives and experiences with research and school-based supports, which helped to identify perceived barriers in implementing the intervention, as well as problem-solve ways to maximise uptake of the intervention and ensuing research.

Primary school students were also involved in co-designing and co-producing intervention resources (see Figure 3). For example, the school experiences of real-life students on the autism spectrum were explored and documented in an edited documentary style video developed in collaboration with the West Australian Screen Academy at Edith Cowan University. Typically developing primary school aged students were also involved in intervention development, acting in a series of interactive video resources for use in the whole-class component of the intervention. Involving students in developing the intervention was integral in ensuring the authentic lived experiences of school aged students were addressed, and that resources were relevant and suitable to end users.

Trial – How Can it be Optimised?

A carefully constructed sequence of studies prior to full scale evaluation helps to optimise and refine interventions and can ultimately accelerate the development of more effective school-based interventions (Orsmond & Cohn, 2015). In this study, the purpose of the trial was to identify and refine components of the intervention that would lead to improved outcomes in phase 3. Another core aspect of this phase was to identify barriers to the implementation of the intervention from end users' perspectives. In relation to the school-based intervention described in this study, it was important to understand perceived barriers in implementing the intervention from educators' perspectives; if intervention resources are age

appropriate and deemed suitable by end users; strategies to maximise parent and whole-school involvement; and potential practical considerations from schools' perspectives.

Originally, I planned to pilot the entirety of the school-based intervention in a small number of schools. However, due to coronavirus disease (COVID-19) lockdowns and resulting school closures in the Perth metropolitan area in 2020, I adapted the design of the research and trialled specific intervention resources with a small number of students, parents, and educators. This provided invaluable feedback on the comprehensibility, relevance and comprehensiveness of worksheets, parent information handouts and the intervention manual prior to the feasibility study in phase 3. Several modifications were made to the intervention based on feedback received.

Feasibility – Does it Work in Real Life Settings? Is it Feasible, Appropriate and Effective?

According to the UKMRC guidelines, for an intervention to be successful, it not only needs to achieve improvements in outcomes for participants (i.e., effectiveness), but also needs to be feasible and well-received from their perspective (i.e., appropriate; Campbell et al., 2000). Feasibility of interventions is critical to translate research to practice, particularly in the context of school-based intervention research, as it shows the end user can use the intervention within the requirements and constraints of an authentic education delivery setting. Evans (2003) states "...no matter how effective an intervention is, if it cannot be adequately implemented, or is unacceptable to the consumer, its value is questionable" (Evans, 2003, p. 79).

According to Evans (2003), feasibility refers to the impact an intervention has on its end user and the resources required to successfully implement the intervention, encompassing broader environmental issues related to implementation. Whereas, appropriateness refers to psychosocial aspects of the intervention and addresses questions related to the acceptability of the intervention by end users (Evans, 2003). The feasibility and appropriateness of the school-

based intervention was evaluated throughout the process of developing the intervention in phase 1 and 2. For example, expert opinions were obtained regarding the feasibility of proposed intervention techniques in the Delphi study, and student, parent and educator feedback was obtained regarding the appropriateness of intervention resources in the trial. The resulting intervention was then evaluated for feasibility, appropriateness and preliminary effectiveness in phase 3 with 10 students on the autism spectrum and their typically developing peers across six mainstream primary schools from July to October 2020 in Perth, WA. Intervention fidelity (i.e., the degree to which an intervention has been delivered as intended; Bellg et al., 2004) was also evaluated in this phase. While feasibility, appropriateness and effectiveness are considered separate constructs under the UKMRC guidelines, appropriateness was subsumed under feasibility when reporting findings of the feasibility study in phase 3 to be concise (see phase-based objectives on page 23 and 24). The feasibility study was an integral step in determining if the intervention is feasible, appropriate and shows promise for students on the autism spectrum and their peers, and whether future larger scale studies are warranted.

Research Aim

The overarching aim of the studies in this thesis was to develop and evaluate the feasibility, appropriateness and preliminary effectiveness of a school-based intervention to improve the school participation and connectedness of primary school students on the autism spectrum and their typically developing peers. To achieve the overarching aim, we undertook three phases, of which specific objectives are detailed below.

Phase 1

The aims of phase 1 were to establish a theoretical base for the intervention and develop the intervention based on a series of studies. The objectives of this phase were to:

- a. systematically review the literature on the psychometric properties of self-report measures of school connectedness for students aged six to 14 years to assist with the conceptualisation of school connectedness and the selection of measures in phase 3;
- b. explore perspectives of parents and educators on the school participation of primary school students on the autism spectrum and gain general recommendations regarding the content, delivery and feasibility of the intervention;
- c. obtain consensus from experts in the field of autism, education, and intervention development on the application of the fPRC to primary school students on the autism spectrum and gain recommendations regarding the content, delivery, and feasibility of the intervention; and
- d. incorporate findings from the above research activities to inform the development of school-based intervention.

Phase 2

The aim of phase 2 was to trial developed intervention resources with students, parents, and educators to identify and refine components that will lead to improved outcomes in phase 3. The objectives of this phase were to:

- a. trial whole-class worksheets with typically developing students for comprehensibility, relevance and comprehensiveness;
- b. seek online feedback from parents and educators on parent information handouts and the intervention manual respectively; and
- c. refine the intervention based on feedback received.

Phase 3

The aim of phase 3 was to evaluate the feasibility, fidelity and preliminary effectiveness of the school-based intervention with primary school students on the autism spectrum and their typically developing peers in Perth, WA.

To investigate feasibility, we evaluated:

- a. recruitment capability and sample characteristics;
- b. data collection procedures and outcome measures;
- c. appropriateness (i.e., the extent to which the intervention is deemed acceptable by end users; Evans, 2003); and
- d. implementation and practicality (i.e., the extent to which the intervention can be successfully delivered using existing means and resources; Bowen et al., 2009; Orsmond & Cohn, 2015).

To evaluate fidelity, we evaluated:

- a. teachers' delivery of the intervention against specific criteria;
- b. parents' receipt and response to weekly parent information handouts; and
- c. schools' implementation of whole-school activity ideas as recommended in the manual.

To explore preliminary effectiveness, we evaluated changes in the classroom participation and subjective experiences of students on the autism spectrum, and students' self-report school engagement and belonging pre-post intervention using a range of outcome measures.

Thesis Outline

This thesis includes Chapters containing peer-reviewed journal manuscripts (i.e., Chapters 2 to 5 and 7) set within traditional Chapters (i.e., Chapters 1, 6 and 8). Chapter 1 outlines the origins and background of the research and the imperative to develop the school-based intervention. The remainder of the thesis is structured in three phases of research, aligning with UKMRC guidelines (see Figure 4). Phase 1 is described in four peer reviewed journal manuscripts from Chapters 2 to 5, which outline findings from the systematic literature review, focus groups and a Delphi study that informed the development of the

school-based intervention. Chapter 5 is a pivotal Chapter in the thesis, describing the multi-stage iterative process of developing the intervention from conceptualisation to implementation in the school environment. Phase 2 of the research, which involved trialling developed intervention resources, is outlined briefly in the manuscript in Chapter 5. However, a more detailed description of the methodology and results of this phase are included in Chapter 6. Phase 3 of the research, which involved evaluating the feasibility, fidelity and preliminary effectiveness of the intervention, is described in the manuscript in Chapter 7. The thesis concludes with a synthesis of findings in Chapter 8, containing lessons learned and future directions for research for the school-based intervention.

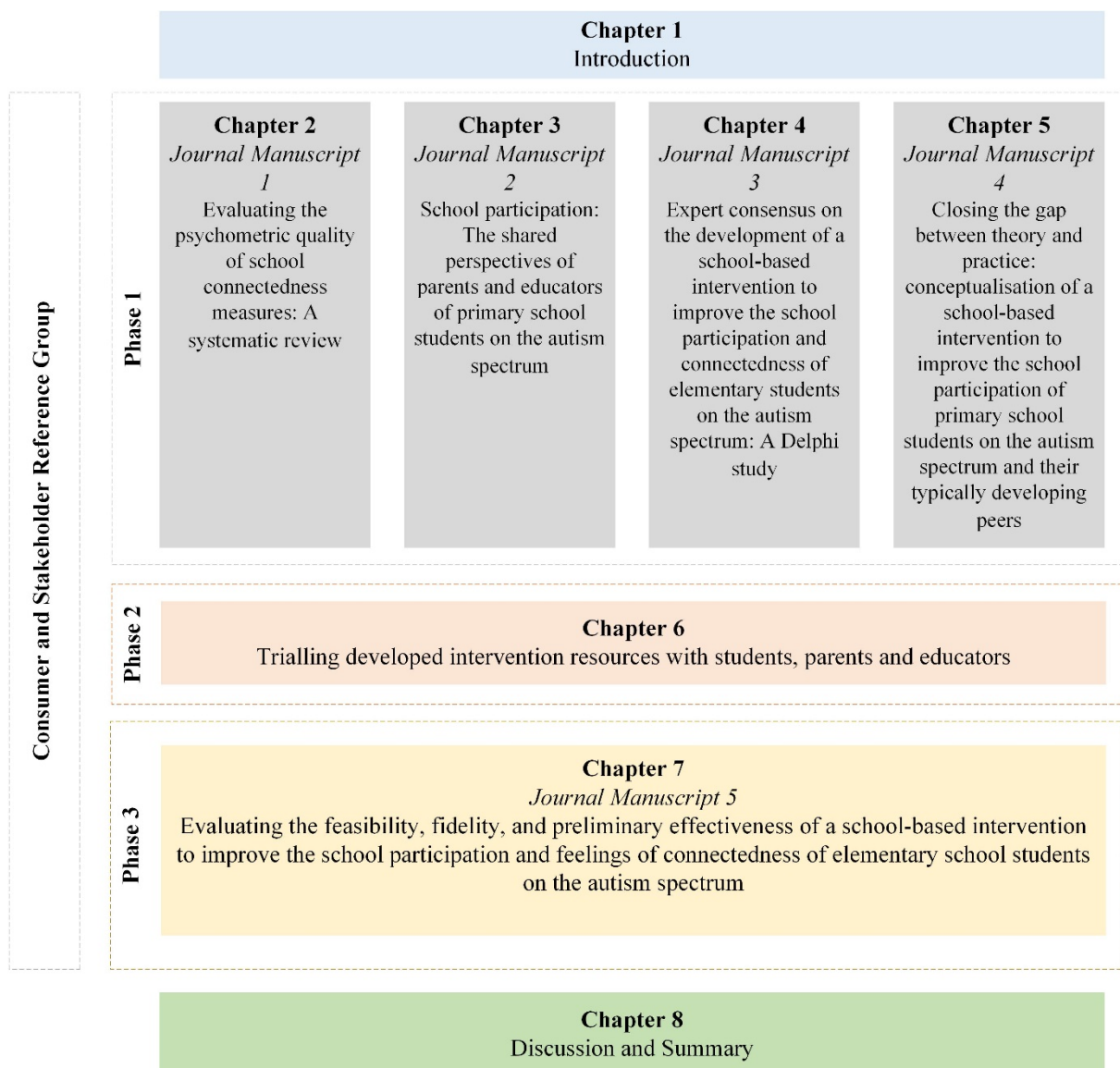
Manuscripts are formatted in the same way as traditional Chapters in line with the American Psychological Association 7th edition (APA; American Psychological Association, 2019) guidelines for consistency. Manuscripts presented in Chapters 2 to 4 are published. These manuscripts were accepted to journals with minor revisions including textual and structural changes. The manuscript in Chapter 5 has been accepted and is currently in press undergoing typesetting by the publisher. The manuscript in Chapter 7 has been submitted to a journal and is currently undergoing peer review. All references and supplementary material relating to manuscripts are contained within relevant Chapters. References for the traditional Chapters are listed at the end of each chapter and relevant Appendices that are not included in manuscripts are included following Chapter 8. The Chapters and manuscripts contained within this thesis are outlined in Figure 4.

Throughout the thesis, language use related to autism varies, which reflects recent contributions to the literature characterising the language preferences of individuals on the autism spectrum (Botha, Hanlon, & Williams, 2021; Bottema-Beutel, Kapp, Lester, Sasson, & Hand, 2021; Vivanti, 2020). Educators, researchers and clinicians tend to prefer person-first language (e.g., student with autism; Hodges, Cordier, Joosten, & Bourke-Taylor, 2021),

whereas autistic adults and other members of the autism community prefer identity first language (e.g., autistic student; Bury, Jellett, Spoor, & Hedley, 2020). The language in this thesis, and resulting intervention resources, have been adapted to reflect the preferences of stakeholders in which they are intended. For example, the intervention manual uses person-first language as it was developed for use by educators; however, educators are encouraged to discuss language preferences with their students and use this at school. Whereas, the documentary style video included in the whole class program, which shares the school experiences of autistic students, uses identity first language in line with preferences of the autistic community. It is recognised there is no absolute consensus, and our understanding of language preferences is continually evolving. I acknowledge, however, that language is a powerful means for shaping how people view autism and, therefore, an effort has been made throughout the thesis to avoid ableist language so that researchers, educators and the broader community may become more accepting and accommodating of autistic individuals (Bottema-Beutel et al., 2021).

Figure 4

Outline of Thesis



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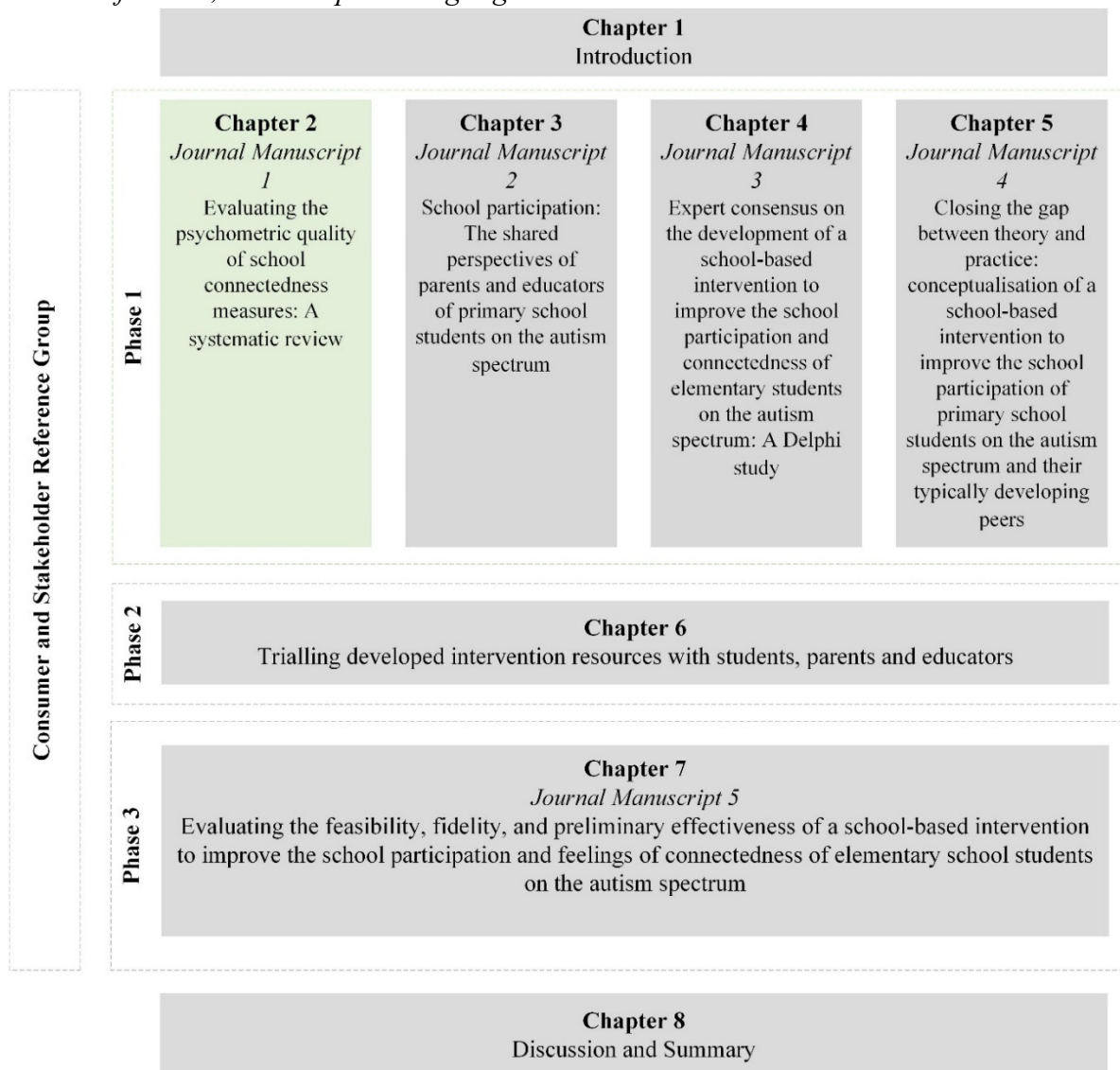
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Chapter 2: Psychometric Properties of School Connectedness Measures

Chapters 2 to 5 detail findings from phase 1 of the research, which involved establishing a theoretical base for the intervention and developing the intervention based on a series of studies. Chapter 2 presents a published systematic literature review critically appraising the psychometric properties of school connectedness measures available for students aged 6 to 14 years (see Figure 5).

Figure 5

Outline of Thesis, with Chapter 2 Highlighted



Despite growing interest in the concept of school connectedness, there is considerable debate regarding the definition of school connectedness. As a result, operationalisation and measurement of school connectedness has been challenging. Without a clear understanding of the concept, it is difficult to make evidence informed choices when selecting measures in intervention research. The systematic literature review helped to define and conceptualise the concept of school connectedness and identify reliable and valid measures to use in the feasibility study in phase 3.

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The journal article has been presented as a Microsoft Word document and formatted according to the American Psychological Association 7th edition (2019) guidelines, consistent with traditional Chapters in the thesis. All references and supplementary material for this Chapter have been listed at the end of the journal article. The journal article has also been presented at the following conference:

Hodges, A., Cordier, R., Joosten, A., Bourke-Taylor, H., & Speyer, R. (2018, December). A systematic review on the psychometric properties of self-report school connectedness measures – implications for measurement with students with Autism Spectrum Disorders [Paper presentation]. Australasian Society for Autism Research Conference 2018, Queensland, Australia.

Evaluating the Psychometric Quality of School Connectedness Measures: A Systematic Review.

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Abstract

Introduction: There is a need to comprehensively examine and evaluate the quality of the psychometric properties of school connectedness measures to inform school-based assessment and intervention planning. *Objective:* To systematically review the literature on the psychometric properties of self-report measures of school connectedness for students aged six to 14 years. *Methods:* A systematic search of five electronic databases and gray literature was conducted. The COnsensus-based Standards for the selection of health Measurement INstruments (COSMIN) taxonomy of measurement properties was used to evaluate the quality of studies and a pre-set psychometric criterion was used to evaluate the overall quality of psychometric properties. *Results:* The measures with the strongest psychometric properties was the School Climate Measure (SCM) and the 35-item version Student Engagement Instrument (SEI) exploring eight and 12 (of 15) school connectedness components respectively. *Conclusions:* The overall quality of psychometric properties was limited suggesting school connectedness measures available require further development and evaluation.

Keywords: school connectedness; measure; psychometrics.

Introduction

The concept of school connectedness has received growing attention from researchers and educators in recent years due to its reported impact on health, social and academic outcomes (Maddox & Prinz, 2003; 2000; Shochet et al., 2006). Students who have a stronger sense of school connectedness are more likely to: engage in socially appropriate behaviours; have higher levels of self-esteem; obtain better grades; display acceptable conduct at school; and are more likely to graduate than students with a lower sense of school connectedness (Finn & Rock, 1997; Fredricks, Blumenfeld, & Paris, 2004; McNeely, Nonnemaker, & Blum, 2002; Newman, Wehlage, & Lamborn, 1992). Longitudinal research suggests that students' sense of school connectedness in early schooling increases engagement in risk behaviour's such as smoking, marijuana use, alcohol consumption and sexualised behaviour in later schooling (Chapman et al., 2013; Connell et al., 1994; Maddox & Prinz, 2003; Resnick et al., 1997). Recent evidence also suggests that students with a lower sense of school connectedness are more likely to experience clinical anxiety and depression during their schooling and in later life (McGraw et al., 2008; Shochet et al., 2006).

School connectedness presents an attractive focus for educators, school psychologists and researchers as it is a subjective concept that is amenable to change through the provision of appropriate school-based supports (Chapman et al., 2013; Shochet & Ham, 2012). School connectedness literature is being used widely to inform the development of school-based interventions, as well as inform educational policy and reform (Christenson, Sinclair, Lehr, & Godber, 2001; Hart, Stewart, & Jimerson, 2011). The Australian Early Years Learning Framework (2009) is an example of this; centred around the notion that for students to experience learning that is engaging and supportive of success in later life, they need to first have a sense of belonging to their school community. As such, there is a need for valid and reliable measures to assess the effectiveness of school-based interventions targeting school

connectedness, in order to minimise the long term documented impacts of reduced school connectedness on students' academic success and socio-emotional wellbeing. Furthermore, access to school connectedness measures with sound psychometric properties will assist in gaining further evidence to support the use of school-based interventions and assist in informing educational policy and reform.

School Connectedness: Theoretical Underpinnings and Definition

Despite growing interest in the concept of school connectedness, there is considerable debate regarding the definition of school connectedness. Many terms have been used interchangeably in the literature to describe school connectedness including school climate, belonging, bonding, membership and orientation to school (Archambault, Janosz, Fallu, & Pagani, 2009; Libbey, 2004). As a result, the operationalisation and measurement of school connectedness has been challenging.

Theoretical models of school connectedness are most commonly embedded within psychology literature. Deci and Ryan's (1985) self-determination theory is regularly referred to within school connectedness literature (Deci, Schwartz, Sheinman, & Ryan, 1981; Flavell, 1999; Niemiec & Ryan, 2009; Nor Aziah, 2013; Ryan & Grolnick, 1986). This theory proposes that for an individual to be motivated and to function optimally, a set of psychological needs such as relatedness, competence and autonomy must be supported (Deci & Ryan, 1985). Relatedness refers to a need to feel a sense of belonging with peers and teachers (Deci & Ryan, 2000; Deci & Ryan, 1985). Competence is the need to feel capable of learning and autonomy is the need to feel that you have choice and control at school (Deci & Ryan, 2000; Deci & Ryan, 1985). These three innate psychological traits are often cited to account for human tendencies to "...engage in activities, to exercise capacities and to pursue connectedness in social groups" (Deci & Ryan, 2000, p. 229); all of which are foundational skills in developing students' sense of school connectedness. Self-determination theory

suggests that students with a strong sense of relatedness or belonging to their peers, teacher and school community are in a better position to learn and more likely to perform better at school due to improved wellbeing and resilience. Furthermore, students who perceive their school environment to be fair, ordered and disciplined and who feel in control of their academic outcomes at school, are more likely to engage and feel connected at school. Deci and Ryan's (1985) self-determination theory illuminates the impact affective, behavioural and cognitive factors have in supporting or hindering a student's sense of school connectedness.

Early research relating to school connectedness has focused on affective aspects of school connectedness (Appleton, Christenson, & Furlong, 2008; Libbey, 2004). Affective engagement, also referred to as psychological and emotional engagement, refers to a student's feelings towards his/her school, learning, and teachers and peers (Appleton et al., 2008; Goodenow, 1993; Libbey, 2004). Affective engagement is accurately captured in Goodenow's (1993) definition of school connectedness, which is the "...extent to which a student feels personally accepted, respected, included and supported by others" (p. 80) in the school environment. This definition, however, does not take into consideration behavioural and cognitive factors that can also impact a student's sense of school connectedness, which have been explored in more recent school connectedness literature. Behavioural engagement includes observable student actions of participation while at school and is investigated through student conduct, effort and participation (Appleton, Christenson, Kim, & Reschly, 2006; Marks, 2000; Newman et al., 1992). Conversely, cognitive engagement includes students' perceptions and beliefs associated with school and learning (Appleton et al., 2006; Marks, 2000; Newman et al., 1992). That is, to feel connected to school the student must be actively involved in classroom and school activities, including school organised extra-curricular activities, and actively think about how they can involve themselves in the learning process at school. Wingspread's Declaration of School Connections (2004), which describes

school connectedness as a “...belief by students that adults in the school community care about students learning and about them as individuals and can be represented by high academic expectations from teachers with support for learning, positive teacher-student interactions and feelings of safety” (p. 234), more accurately captures behavioural and cognitive aspects of school connectedness.

Several reviews have focused on defining the meta-construct of school connectedness (Appleton et al., 2008; Fredricks et al., 2004; Jimerson, Campos, & Grief, 2003). These reviews highlight that the construct of school connectedness has evolved over time – from a relatively simple construct focusing on students’ general feelings towards school; to a more complex multi-dimensional construct comprising not only students’ feelings towards school, but also their perceptions and beliefs towards school and learning, and their involvement in classroom and playground activities and school events. Researchers in the field postulate that definitions of school connectedness should include the triad of indicators (i.e., affective, behavioural, and cognitive) and facilitators (i.e., personal and contextual factors) that influence connectedness (Appleton et al., 2008). Indicators “...convey a student’s degree or level of connection with learning while facilitators are factors that influence the strength of the connection” (Appleton et al., 2008, p. 382). Although this definition has been proposed, authors of this study have not found a definition of school connectedness that fully encapsulates all of these components. Following an extensive review of the literature, authors of the study thematically categorised factors contributing towards students’ sense of school connectedness under affective, cognitive and behavioural domains illustrated in Table 1. For the purposes of this review, these domains and concepts will be subsumed under the broader construct of school connectedness. Collectively, the concepts in Table 1 are critical dimensions of students’ experiences in school. Together, they are essential in promoting student development and overall academic success. These concepts are often targeted within

individual and school wide interventions strategies. As such, there is a need for measures that assess these school connectedness domains and constructs both cross-sectionally and longitudinally.

Table 1

School Connectedness Domains and Constructs

Affective	Cognitive	Behavioural
<ul style="list-style-type: none"> • Feelings of acceptance, inclusion and belonging • Feelings of respect and being respected • Valuing the importance of school • Sense of safety • Sense of autonomy and independence • Feeling competent in academic abilities. 	<ul style="list-style-type: none"> • Perceptions of the quality of teacher relationships and support • Perceptions of the quality of peer relationships and support • Perceptions of the quality of academic support • Perceptions of discipline, fairness, order in the school • Perceptions of the value parents place on school and support engagement 	<ul style="list-style-type: none"> • Actual involvement, participation or engagement (including classroom and playground activities, school organised extra-curricular activities or school events) • Level of effort or persistence • Positive or negative conduct • Degree of interest or motivation towards school

Measuring School Connectedness

Not surprisingly, given the difficulties in defining school connectedness, there are various ways in which this concept has been measured. The differences in the way the concept is measured are theoretical and methodological. The theoretical background of the researcher often determines how school connectedness is measured. For example, Jimerson, Campos and Grief (2003) identify and assess student motivation as an affective indicator of school connectedness with a background in psychology; while Fredricks, Blumenfeld and

Paris (2004) identify it as a cognitive indicator with a background in educational psychology. While motivation is an intrinsic process, it manifests itself extrinsically through student behaviour (Covington, 2000). Therefore, authors of this study have categorised student interest or motivation as a behavioural indicator of school connectedness (see Table 1).

The purpose of assessing school connectedness often determines how the construct is measured. Some measures have been developed specifically for the school context (e.g., What's Happening In This School (Aldridge, Laughksch, Seopa, & Fraser, 2006)), whereas others extend their exploration to the home and community environment with subscales or items that refer to school (e.g., Adolescents Sense of Wellbeing Related to Stress) (Haraldsson et al., 2008). Some measures have been developed specifically to assess students' sense of school connectedness in particular subjects such as maths, science or physical education (e.g., What's Happening In This Class (Singapore version)) (Chionh & Fraser, 2009). Some measures focus on assessing an individual student's sense of connectedness (e.g., SEI) (Appleton & Christenson, 2004), whereas others aim to assess an individual's perception of connectedness at a classroom or school level (e.g., Classroom Environment Scale (Trickett & Moos, 2002), Classroom Peer Context Questionnaire (Boor-Klip, Segers, Henrick, & Cillessen, 2016)). Schools conducting research into school connectedness will often tailor their measurement approach based on their needs; for example, whether they want to gain an understanding of their schools sense of connectedness to inform funding allocation, versus whether they want to identify individual at-risk students to inform the provision of school supports (National Center for School Engagement, 2006).

There is debate within the literature regarding whether self-report or proxy report measures should be used when evaluating school connectedness (Bowling, 2005). Many would argue the subjective nature of school connectedness makes it less amenable to third party report (Jimerson et al., 2003; Libbey, 2004). For example, the teacher may observe the

student to play with peers or engage in the curriculum, but the student themselves, for whatever reason, may not feel like they are a part of their school community. Self-report measures help to depict the student's personal perception of their experience at school. Teacher-report methods may be more suitable in capturing behavioural components of school connectedness such as the student's level of effort or persistence at school that can be objectively observed (West, 2014). As previously mentioned, students will experience a sense of connectedness when their needs of autonomy, competence and relatedness are met within the school environment (Deci & Ryan, 2000). The assumption is that students' feelings of being included and accepted at school, as well as the perception they are making important contributions to the school community, help to create and maintain feelings of connectedness. Therefore, in order to gain an accurate depiction of students' sense of school connectedness, the use of student self-report measures is warranted and will be the focus of this particular review.

The differences in the way school connectedness is defined makes it difficult to compare measures to each other in an attempt to identify the most valid and reliable tool to use in the school context. As children spend more time in schools than any other place outside their homes, it is important to be able to validly and reliably assess student experiences within school so that appropriate supports can be provided (National Center for School Engagement, 2006). Furthermore, it is important to be able to reliably measure this construct with students in early primary school, to prevent or minimise the long term documented impacts of reduced school connectedness on student outcomes.

The COSMIN taxonomy has been successfully applied to more than 560 systematic reviews (Mokkink, Terwee, Knol, et al., 2010; Terwee, 2014). The COSMIN checklist is a standardised tool that can be used to critically appraise the methodological quality of studies reporting on the psychometric properties of measures (Mokkink, Terwee, Knol, et al., 2010).

The COSMIN checklist was chosen for this systematic review as it has been developed following extensive international consultation and consensus among experts in the field of psychometrics and clinical metrics. The COSMIN was used in the current review to compare the psychometric properties of existing school connectedness measures, originally developed in English that capture affective, cognitive and behavioural domains of school connectedness using self-report methods for students aged six to 14 years of age. It is expected that this systematic review will assist in the choice of instruments measuring school connectedness, by providing an objective account of the strengths and weaknesses of self-report measures available for school aged children.

Methods

The Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) statement guided the methodology and writing of this systematic review. The PRISMA statement is a 27-item checklist that is deemed essential in the transparent reporting of systematic reviews (Moher, Liberati, Tetzlaff, & Altman, 2009). A completed PRISMA checklist for the current review is accessible (see SI Table 1).

Eligibility Criteria

Research articles, published manuals and reports detailing the psychometric properties of self-report instruments designed to measure school connectedness of students aged six to 14 years of age were deemed eligible for inclusion in this review. To be included, abstracts and instruments needed to address all three school connectedness domains (i.e., behavioural; affective and cognitive); address at least five of 15 concepts within school connectedness domains (see Table 1); provide validity evidence for students aged six to 14 years of age; be specific to the school context; have psychometrics properties published within the last 20 years; and be written in English. Psychometrics properties published more than 20 years ago were deemed out-dated. Measures were excluded if the full text of the article was not

retrievable; they were specific to a subject area (e.g., maths or science) or a student population (e.g., students with craniofacial abnormalities). Measures that provided validity evidence for students requiring special education assistance were included in the review, as long as the sample also included typically developing students. Dissertations, conference and review papers were excluded as they are not peer reviewed, and the search yielded sufficient results.

Information Sources

The first systematic literature search was performed on the 13th June 2016 by two authors using the following five electronic databases: CINAHL, Embase, ERIC, Medline and PsycINFO. Subject headings and free text were used when searching each database. A gray literature search was also conducted using Google Scholar and PsycEXTRA between the 21st and 27th July 2016 to identify additional measures. See SI Table 2 for a complete list of search terms used across all searches. A second literature search was conducted on the 18th September 2016 using the title of the measure and its acronym in CINAHL, Embase, ERIC, Medline and PsycINFO to identify additional psychometric articles not identified in the first search. To be comprehensive, websites of publishers of assessments in education and social science such as Pearson Education, ACER and Academic Therapy Publications were searched.

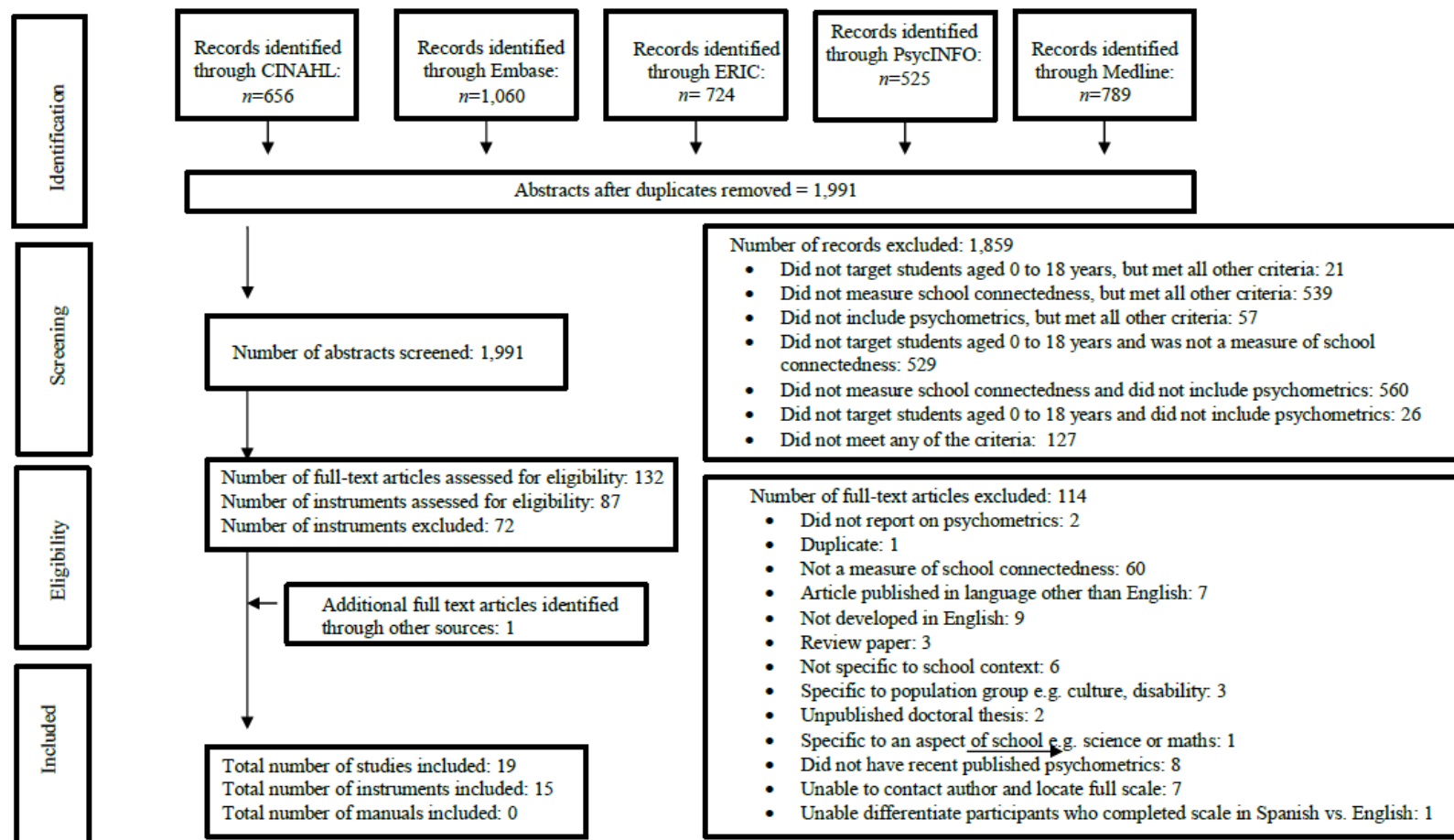
Study Selection

Abstracts were reviewed using three dichotomous scales to determine (a) if the study involved students aged between 0 and 18 years (yes/no), (b) if the instrument measured school connectedness or related terms (e.g., group membership, learner engagement, school community relationship, student participation, school involvement) (yes/no) and (c) if the study reported on the psychometric properties of the measure (yes/no). Results from the three dichotomous scales were then combined to generate a single ordinal scale from 0 to 3; 0 indicating the abstract did not meet any criteria and 3 indicating the abstract met all three

criteria. A random sample of 40% of abstracts was generated using an electronic random allocator (www.random.org). Based on previous systematic reviews using COSMIN (Cordier, Chen, et al., 2016; Cordier, Milbourn, et al., 2016; Cordier et al., 2015), this percentage was deemed sufficient to detect systematic error. The random sample was reviewed by the primary author and an independent rater to establish inter-rater reliability. Inter-rater reliability between raters was deemed excellent: Weighted Kappa = 0.814 (95% CI: 0.791 – 0.836). Abstracts that did not meet any of the criteria or met only one of the criteria were excluded from the study. Abstracts that met two or three of the criteria were reviewed a second time and discussed by the primary author and independent rater to gain consensus and ensure only studies meeting all eligibility criteria were included in full text review. The primary author then rated the remaining abstracts and 132 full texts articles meeting all three criteria. Articles were excluded if the full text did not meet criteria (see Figure 6). Scoring a random sample of abstracts first, allowed the researcher to learn from the process and avoid systematic errors.

Figure 6

Flow Diagram of the Reviewing Process According to PRISMA (2009)



Data Collection Process and Data Extraction

Information from articles were extracted under the following descriptive categories: purpose of the measure, number of subscales, total number of items, response options and time to complete, article reference and sample characteristics. The information extracted from articles was guided by the Cochrane Handbook for Systematic Reviews (2008) Section 7.3a and the Systematic Reviews Centre for Reviews and Dissemination (2009).

Methodological Quality

The methodological quality of included studies was assessed using the COSMIN taxonomy of measurement properties and definitions for health-related patient reported outcomes (Mokkink, Terwee, Knol, et al., 2010; Mokkink, Terwee, Patrick, et al., 2010). The COSMIN checklist is a standardised tool and consists of nine domains: internal consistency, reliability (including test-retest reliability, inter-rater reliability and intra-rater reliability), measurement error, content validity (including face validity), structural validity, hypotheses testing, cross cultural validity, criterion validity and responsiveness (Mokkink, Terwee, Knol, et al., 2010). Refer to Table 2 for the definitions of all psychometric properties as defined by the COSMIN statement (Mokkink, Terwee, Patrick, et al., 2010). Responsiveness was not evaluated as a psychometric property as it would have increased the size of the review exponentially and was deemed outside the scope of this review. Criterion validity was also not evaluated due to the absence of a ‘gold standard’ measure of school connectedness. Cross-cultural validity was not evaluated as instruments included in the review were developed and published in English. Interpretability is not considered to be a psychometric property under the COSMIN framework and was therefore not described or evaluated in this review.

Table 2

COSMIN Definitions of Domains, Psychometric Properties and Aspects of Psychometric Properties for Health-Related Patient-Reported Outcomes Adapted from Mokkink et al. (2010).

Psychometric property	Definition ^a
Validity: the extent to which an instrument measures the construct/s it claims to measure.	
Content validity	The degree that the content of an instrument adequately reflects the construct to be measured.
Face validity ^b	The degree to which instrument (items) appear to be an adequate reflection of the construct to be measured.
Construct validity	The extent to which the scores of an instrument are consistent with hypotheses, based on the assumption that the instrument is a valid measure of the construct being measured.
Structural validity ^c	The extent to which instrument scores adequately reflect the dimensionality of the construct to be measured.
Hypothesis testing ^c	Item construct validity.
Cross cultural validity ^c	The degree to which the performance of items on a translated or culturally adapted instrument are an adequate reflection of the performance of the items in the original version of the instrument.
Criterion validity	The degree to which the scores of an instrument satisfactorily reflect a “gold standard”.
Responsiveness	The capability of an HR-PRO instrument to detect change in the construct to be measured over time.
Interpretability ^d	The extent to which qualitative meaning can be given to an instrument’s quantitative scores or score change.
Internal consistency	The level of correlation amongst items.
Reliability	The proportion of total variance in the measurements due to “true” differences amongst patients.
Measurement error	The error of a patient’s score, systematic and random, not attributed to true changes in the construct measured.

Note. ^a Applies to Health-Related Patient-Reported Outcomes (HR-PRO) instruments. ^b Aspect of content validity under the domain of validity. ^c Aspects of construct validity under the domain of validity. ^d Interpretability is not considered a psychometric property.

Each domain of the COSMIN checklist includes 5 to 18 items focusing on various aspects of study design and statistical analyses. A 4-point rating scale proposed by Terwee et al. (2007) enables an overall methodological quality score from poor to excellent, to be obtained for each measure. Terwee et al. (2007) suggests taking the lowest rating of any item in the domain as the final quality rating, however this makes it difficult to differentiate between subtle psychometric qualities of assessments. Therefore a revised scoring system was applied and presented as a percentage: Poor (0–25%), Fair (25.1%–50.0%), Good (50.1%–75%) and Excellent (75.1–100%) (Cordier et al., 2015). As some COSMIN items only have an option to rate as good or excellent, the total score for each psychometric property was calculated using the formula detailed below, to accurately capture the quality of psychometric properties (Mokkink, Terwee, Knol, et al., 2010):

Total score per psychometric property

$$= \frac{(Total\ score\ obtained - Min\ score\ possible)}{(Max\ score\ possible - Min\ score\ possible)} \times 100\%$$

After the studies were assessed for methodological quality, the quality of psychometric properties were evaluated using modified criteria by Terwee (2007) and Schellingerhout et al. (2012). A summary of the criteria used for rating the quality of internal consistency, content validity, structural validity and hypothesis testing is detailed in Table 3. Finally, each measurement property for all instruments was given an overall score using criteria set out by Schellingerhout (2012). An overall quality rating was created by combining the study quality scores measured by COSMIN and the psychometric quality ratings as measured by Terwee et al. (2007) and Schellingerhout (2012). This method has been used

successfully in previous psychometric reviews (Cordier, Chen, et al., 2016; Doma, Speyer, Leicht, & Cordier, 2016). The COSMIN checklist (2007) and Terwee (2007) and Schellingerhout et al. (2012) criteria accommodates studies that use both Classical Test Theory (CTT) and Item Response Theory (IRT) methodology.

Table 3

Criteria of Psychometric Quality Rating Based on Terwee et al. (2010) and Schellingerhout et al. (2012).

Psychometric property	Score ^a	Quality criteria ^b
Content validity	+	A clear description is provided of the measurement aim, the target population, the concepts that are being measured, and the item selection and target population and (investigators or experts) were involved in item selection
	?	A clear description of above-mentioned aspects is lacking or only target population involved or doubtful design or method
	-	No target population involvement
	±	Conflicting results
	NR	No information found on target population involvement
	NE	Not evaluated
Structural validity ^c	+	Factors should explain at least 50% of the variance
	?	Explained variance not mentioned
	-	Factors explain <50% of the variance
	±	Conflicting results
	NR	No information found on structural validity
	NE	Not evaluated
Hypothesis testing ^c	+	Specific hypotheses were formulated AND at least 75% of the results are in accordance with these hypotheses
	?	Doubtful design or method (e.g., no hypotheses)
	-	Less than 75% of hypotheses were confirmed, despite adequate design and methods

Psychometric property	Score ^a	Quality criteria ^b
	±	Conflicting results between studies within the same manual
	NR	No information found on hypotheses testing
	NE	Not evaluated
Internal consistency	+	Factor analyses performed on adequate sample size (7 * # items consistency and ≥ 100) AND Cronbach's alpha(s) calculated per dimension and Cronbach's alpha(s) between 0.70 and 0.95
	?	No factor analysis OR doubtful design or method
	-	Cronbach's alpha(s) <0.70 or >0.95, despite adequate design and method
	±	Conflicting results
	NR	No information found on internal consistency
	NE	Not evaluated
Reliability	+	ICC or weighted Kappa ≥ 0.70
	?	Doubtful design or method (e.g., time interval not mentioned)
	-	ICC or weighted Kappa < 0.70, despite adequate design and method
	±	Conflicting results
	NR	No information found on reliability
	NE	Not evaluated
Measurement error ^d	+	MIC < SDC OR MIC outside the LOA OR convincing arguments that agreement is acceptable
	?	Doubtful design or method OR (MIC not defined AND no convincing arguments that agreement is acceptable)
	-	MIC \geq SDC OR MIC equals or inside LOA, despite adequate design and method;
	±	Conflicting results
	NR	No information found on measurement error
	NE	Not evaluated

Notes. ^a Scores: + = positive rating, ? = indeterminate rating, - = negative rating, ± = conflicting data, NR = not reported, NE = not evaluated (for study of poor methodological quality according to COSMIN rating, data are excluded from further evaluation). ^b Doubtful design or

method is assigned when a clear description of the design or methods of the study is lacking, sample size smaller than 50 subjects (should be at least 50 in every subgroup analysis), or any important methodological weakness in the design or execution of the study. ^c Hypothesis testing: all correlations should be statistically significant (if not, these hypotheses are not confirmed) AND these correlations should be at least moderate ($r > 0.5$). ^d Measurement error: MIC = minimal important change, SDC = smallest detectable change, LOA = limits of agreement.

To maximise consistency of ratings, the fifth author of this study who has extensive experience in the area provided training to the primary author and an independent rater on how to complete the COSMIN checklist and to determine the quality of the psychometric properties. The first author scored all the papers. A random selection of 40% of COSMIN ratings and all psychometric quality ratings were scored by an independent rater. Both raters met until 100% consensus was achieved when ratings differed in category. The fifth author met with the two raters to resolve differences in ratings when a consensus could not be reached (Weighted Kappa: 0.886, 95% CI: 0.823–0.948).

Data Items, Risk of Bias and Synthesis of Results

All data items for each measure were obtained. Items that were not reported were recorded as ‘NR’. Risk of bias was assessed at an individual study level using the COSMIN checklist. Studies that obtained a high rating were deemed to be at low risk of bias and studies that obtained a low rating were deemed at high risk of bias. Psychometric properties only received a ‘positive’ or ‘negative’ rating if clear and appropriate methodology was reported. If unclear or inappropriate methodology was used, an ‘indeterminate’ rating was recorded; providing further evidence for risk of bias. Ratings from individual studies and psychometric properties were then combined to create an overall rating for each psychometric property of each measure. Risk of bias is subsumed into final results.

Results

Systematic Literature Search

A total of 3,754 abstracts were retrieved from database searches, including duplicates. The total abstracts from subject heading and free text word searches across databases were: CINAHL = 656, Embase = 1,060, ERIC = 724, Medline = 789, PsycINFO = 525. Reference lists of included articles were searched for additional literature. A total of 1,763 duplicates were identified across the five databases and removed. After the removal of duplicate abstracts, a total of 1,991 articles were screened for inclusion in the review. Of these studies, 132 full text articles on 87 measures were assessed for eligibility. Of these 87 measures, 15 met the inclusion criteria and 72 were excluded. Refer to SI Table 3 for an overview of the 72 excluded instruments and the reasons for exclusion. The references of two manuals were identified for two included instruments; however, because they were irretrievable they were not included in the review. Therefore, psychometric properties of 15 measures were obtained, which were assessed using 18 research articles and 1 research report. Figure 6 illustrates the reviewing process according to PRISMA.

Included School Connectedness Measures

Table 4 summarises characteristics of 15 measures that met inclusion criteria and articles reporting on psychometric properties. All measures were developed and validated with typically developing students from a range of ethnic and socio-economic backgrounds in the United States, except for one, which was developed in New Zealand (Rubie-Davies, Asil, & Teo, 2016). The majority of measures were developed with an adolescent sample (12 to 18 years), with only a small number of measures developed and validated with students under the age of 12 years (Carter, Reschly, Lovelace, Appleton, & Thompson, 2012; Solomon, Battistich, Watson, Schaps, & Lewis, 2000). Only three measures extended their samples to include students receiving special education services; however, these students made up less

than 15% of the total sample (Carter et al., 2012; Ding, Liu, & Berkowitz, 2011; Lovelace, Reschly, Appleton, & Lutz, 2014; Renshaw, 2015). The majority of studies had large sample sizes, with the median sample size being 1,642 (range of 77 to 47,488). All of the measures that met eligibility criteria were published after 1996. Of the 15 measures, 11 were published within the last 10 years (since 2006). All measures collected responses via pen and paper questionnaires and were conducted within the school setting. Some measures were administered verbally to students who identified as having English as their second language.

Table 5 summarises the domains of school connectedness measured by each instrument. The subdomains were categorised following a thematic synthesis by four members of the research team based on the definitions or descriptions of the scales and/or subscales in included studies. Subdomains were identified and subsumed under the most relevant domain: (1) affective (i.e., feelings of acceptance, belonging and inclusion; feelings of respect and being respected; value importance of school; feelings of safety; sense of autonomy and independence and academic self-efficacy), (2) cognitive (i.e., perceptions of – teacher relationships and support; peer relationships and support; academic support; discipline, order and fairness; and the value parents place on school) and (3) behavioural (i.e., involvement, participation and engagement; effort and persistence; conduct and interest and motivation). No single instrument measured all aspects of affective, cognitive and behavioural domains of school connectedness. The measure that measured the most aspects was versions of the SEI (i.e., 35 item, 33 item and elementary version) (Appleton & Christenson, 2004; Betts, Appleton, Reschly, Christenson, & Huebner, 2010; Carter et al., 2012; Lovelace et al., 2014; Reschly, Betts, & Appleton, 2014), which measured 12 of 15 affective, cognitive and behavioural components of school connectedness.

Table 4*Characteristics of Identified School Connectedness Measures and Description of Studies Describing their Development and Validation*

Measure (Acronym); Published Year	Purpose*; description of measure	Number of subscales	Total items	Response options; time to complete	Reference	Study purpose	Sample characteristics Age (range [R]; Mean [M], Standard Deviation [SD], Not Reported [NR]).
Perceived School Experiences Scale (PSES), 2012	Descriptive, discriminative and predictive. For use by social workers to assess students' perceptions of their school experience for school improvement planning.	3 SS: School Connectedness; Academic Press; Academic Motivation.	14	5 point Likert (1 – strongly disagree, 5 – strongly agree). 30 minutes.	Anderson-Butcher, Amorose, Iachini & Ball (2012)	To develop and evaluate psychometric properties of the PSES.	N= 870. United States. Study 1 – exploratory and confirmatory factor analysis. Calibration sample (n=386): Year of enrolment: Year 7 (8.5%), Year 8 (32%), Year 9 (8.8%); Year 10 (9.8%); Year 11 (10.95%), Year 12 (29.95%). Gender: Female (53.1%); Male (46.9%). Ethnicity: Caucasian (71%); African American (14%); Multi-racial (8.8%); Other (6.2%). Excluded findings from Study 2 (test retest reliability and hypothesis testing) as only had 3 of 97 participants meeting age criteria.
Student Engagement in Schools Questionnaire (SESQ), 2008	Descriptive and discriminative. Measures students perspectives of facilitators and	5 SS: Affective - Liking for Learning ; Affective - Liking for School;	109	5 point Likert (1 – never, 5 – always). 35 minutes	Hart, Stewart & Jimerson (2011)	To establish the psychometric properties of the SESQ.	N=428. United States. Year of enrolment: Year 7 (36%); Year 8 (5%); Year 9 (59%). Gender: Male (54%); Female (46%). Ethnicity: Hispanic (42%); African American (25%); Caucasian (6%); Other (27%).

Measure (Acronym); Published Year	Purpose*; description of measure	Number of subscales	Total items	Response options; time to complete	Reference	Study purpose	Sample characteristics Age (range [R]; Mean [M], Standard Deviation [SD], Not Reported [NR]).
	indicators of engagement	Behavioural - Effort and Persistence; Behavioural - Extra Curricular; Cognitive Engagement.					
Student Engagement Instrument (SEI), 35 item version, 2004	Descriptive, discriminative and predictive. Measures students' level of engagement as well as determination of goodness of fit between student and learning environment and factors that influence the fit.	6 SS: Teacher-Student Relationships; Control and Relevance of School Work; Peer Support for Learning; Future Aspirations and Goals; Family Support for Learning Extrinsic Motivation.	35	4 point Likert (1 – strongly disagree, 5 – strongly agree). 20 to 30 minutes.	Appleton, Christenson, Kim & Reschly (2006)	To examine the psychometric properties of the SEI.	N= 1,931. United States. Year of enrolment: Year 9 (100%). Gender: Female (51%); Male (49%). Ethnicity: African American (40.4%); White (35.1%); Asian (10.8%); Hispanic (10.3%); American Indian (3.4%). Speak languages other than English (22.9%).
Student Engagement Instrument (SEI), 33	See above.	5 SS: Teacher-Student Relationships;	33	4 point Likert (1 – strongly disagree, 5 – strongly	Betts, Appleton, Reschly, Christenson	Examine the psychometric properties of the SEI.	N=2416. United States. Two districts: South Carolina (n=418) and Minnesota (n=1998). Year of enrolment: Years 6 to 12 (300

Measure (Acronym); Published Year	Purpose*; description of measure	Number of subscales	Total items	Response options; time to complete	Reference	Study purpose	Sample characteristics Age (range [R]; Mean [M], Standard Deviation [SD], Not Reported [NR]).
item version, 2010		Control and Relevance of School Work; Peer Support for Learning; Future Aspirations and Goals; Family Support for Learning		agree). 20 to 30 minutes	& Huebner (2010)		students per grade). Gender: Males (n=1197); Females (n=1219). Ethnicity: European American (86%), African American (9%), Asian American (1%), Hispanic (2%), Native American (2%). Less than 2% indicated that English was second language.
					Reschly, Betts & Appleton (2014)	Examine psychometri cs of two measures of student engagement.	N=277. United States. Year of enrolment: Year 9, 10 and 12 (mean age of 17 years) Gender: Female (57%); Males (43%). Ethnicity: African American (71%); Other (29%)
					Lovelace et al. (2014)	Examine concurrent and predictive validity of the SEI.	N= 47,488. United States. Sample 1 – concurrent validity (n=35, 900). Year of enrolment: Year 6 (33.6%); Year 7 (34.6%), Year 8 (31.8%). Gender: Female (48.5%); Male (51.5%). Ethnicity: Caucasian (35.1%); African American (22.8%), Hispanic (10.3%); Asian (4.1%), Multiracial (<1%); Other (26.7%). English speaking (68.5%); Spanish speaking (19/9%). Students receiving

Measure (Acronym); Published Year	Purpose*; description of measure	Number of subscales	Total items	Response options; time to complete	Reference	Study purpose	Sample characteristics Age (range [R]; Mean [M], Standard Deviation [SD], Not Reported [NR]).
							special education services (13.6%). Sample 2 – predictive validity (n=11588). Gender: Female (49.8%); Male (50.2%). Ethnicity: Caucasian (37.4%); African American (26.5%), Hispanic (20.4%); Asian (10.5%), Multiracial (4.6%); Other (0.6%). English speaking (72.3%); Spanish speaking (15.5%). Students receiving special education services (10.9%).
Student Engagement Instrument – Elementary (SEI – E) Version, 2012	See above	4 SS: Teacher Student Relationships Peer Support for Learning Future Goals and Aspirations Family Support for Learning	24	4 point Likert (1 – strongly disagree, 5 – strongly agree). 20 to 30 minutes	Carter et al. (2012)	To validate the elementary version of the SEI.	N=1,943. United States. Year of enrolment: Equivalent samples across Year 3 to 5. Gender: Equal male and female. Ethnicity: African American (29.8%); Hispanic (28.9%); Caucasian (28.6%); Asian / Pacific Islander (8.5%); Multi- racial (4.2%). Students receiving special education services (13.7%); English language learners (16.2%).

Measure (Acronym); Published Year	Purpose*; description of measure	Number of subscales	Total items	Response options; time to complete	Reference	Study purpose	Sample characteristics Age (range [R]; Mean [M], Standard Deviation [SD], Not Reported [NR]).
Student Subjective Wellbeing Questionnaire (SSWQ), 2014	Descriptive, discriminative and predictive. Measures students' subjective wellbeing at school.	4 SS: Academic Efficacy Educational Purpose Joy of Learning School Connectedness	16	4 point Likert (1 – almost never, 5 – almost always)	Renshaw, Long, Cook (2014)	To develop and validate the SSWQ.	N=1,002. United States. Year of enrolment: Year 6 to 8 across two schools. Ethnicity (School Sample 1): African American (63%); Caucasian (26%); Multiple ethnicities (11%). Ethnicity (School Sample 2): African American (73%), Caucasian (13%); Multiple ethnicities (14%).
					Renshaw et al. (2015)	Investigate latent factor structure, factor/scale characteristics, multi group measurement invariance and potential utility of the SSWQ.	N=438. United States. Year of enrolment: Year 6 (49.1%) and Year 7 (50.9%). Ethnicity African American (63%); Caucasian (26%); Hispanic (5%); Asian or Pacific Islander (3%); Multiple ethnicities (3%). Eligible for free or reduced price lunch (76%); qualified for special education services (9%).

Measure (Acronym); Published Year	Purpose*; description of measure	Number of subscales	Total items	Response options; time to complete	Reference	Study purpose	Sample characteristics Age (range [R]; Mean [M], Standard Deviation [SD], Not Reported [NR]).
Developmental School Climate Survey – Full Version, 2000	Discriminative and evaluative. Assesses students perceptions of school climate	5 SS: School environment Academic attitudes and motives Personal attitudes, motives and feelings Social attitudes, motivates and behaviour Cognitive/ academic performance.	100	Not Reported	Solomon, Battistich, Watson, Schaps & Lewis (2000)	To evaluate comprehensive elementary school program over a three- year period. Demonstrated factor structures and reliabilities within paper.	N=4,373 to 5,011. United States. Year of enrolment: elementary schools over six districts from Year 3 to 6.
Developmental School Climate Survey - Abbreviated Version, 2011	See above	7 SS: Positive behaviour Negative behaviour Classroom and school supportiveness Autonomy and influence Safety at school	34	Not Reported	Ding, Liu & Berkowitz (2011)	To examine the factor structure and reliability of an abbreviated version of the Developmental School	N=6,500. United States. 24 elementary schools. Ethnicity: African American (58%), Caucasian (26%); Hispanic (13%), Other (3%). Students with special needs (27.3%).

Measure (Acronym); Published Year	Purpose*; description of measure	Number of subscales	Total items	Response options; time to complete	Reference	Study purpose	Sample characteristics Age (range [R]; Mean [M], Standard Deviation [SD], Not Reported [NR]).
		Enjoyment of class / school liking School norms and rules				Climate Survey	
Student Personal Perception of Classroom Climate (SPPCC), 2010	Descriptive; Measures students perceptions of classroom climate	4 SS: Teacher support Academic Competence Satisfaction Peer Support	26	4 point Likert (1 – never, 4 – almost always)	Rowe, Kim, Baker, Kamphaus & Horne (2010)	To examine the factor structure of the SPPCC.	N= 589. United States. Study 1 – Sample (n= 267). Year of enrolment Year 3 (35%); Year 4 (32%); Year 5 (33%). Gender: Males (47%); Females (53%). Ethnicity: African American (46%); Caucasian (34%); Hispanic (7%); Asian Pacific (2%); Multiracial (2%), Other (8%). Study 2 - Sample (n=322). Year of enrolment: Year 3 (35%); Year 4 (32%); Year 5 (33%). Gender: Males (49%); Females (51%). Ethnicity: African American (29%); Caucasian (24%); Hispanic (9%); Asian / Pacific (2%); Multiracial (2%); Other (34%).
Student Personal Perception of Classroom	See above.	4 SS: Teacher support Academic Competence Satisfaction	26	5 point Likert (1 – false, 5 – true)	Rubie Davies, Asil & Teo (2016)	To assess measuremen t invariance of SPCC	N=1,924. New Zealand. Year of enrolment: Year 3 (5.7%); Year 4 (18.5%), Year 5 (18.5%), Year 6 (17.7%), Year 7 (19.2%); Year 8 (20.4%). Gender: Female

Measure (Acronym); Published Year	Purpose*; description of measure	Number of subscales	Total items	Response options; time to complete	Reference	Study purpose	Sample characteristics Age (range [R]; Mean [M], Standard Deviation [SD], Not Reported [NR]).
Climate (SPPCC), Adapted Version, 2016		Peer Support				with NZ sample.	(49.9%); Male (50.1%). Ethnicity: New Zealand European (47%), Maori (18.8%); Pacific Islander (16.3%), Asian (14.8%); Other (3.1%)
Identification with School Questionnaire, 1996	Descriptive and discriminative. Measures students' identification with school.	2 SS: Belongingness in school Feelings of valuing school and school related outcomes	16	4 point Likert (1 – strongly agree, 4 – strongly disagree)	Voekl (1996)	To develop and validate the Identification with School Questionnaire.	N=3,539. United States. Year of enrolment: Year 8 students. Gender: Male (M=48.38; SD=6.76); Female (M=50.66; SD: 5.78).
Student School Engagement Survey (SSES), 2006	Descriptive, discriminative and predictive. Measures students level of engagement in three domains	3 SS: Emotional engagement Cognitive engagement Behavioural engagement	45	Likert scale (strongly agree to strongly disagree)	National Centre for School Engagement (2006)	To develop and validate the SSES.	N=135. United States. Year of enrolment: Elementary school students, age (M/SD/R = NR)
School Bonding Index Revised (SBI-R), 2003	Descriptive, discriminative and predictive. Measures youth level of attachment to and comfort with school.	4 SS: School experience School involvement School delinquency School pride	24	Likert scale	Rodney, Johnson & Srivastava (2005)	To evaluate effectiveness of the Family and Community Violence Prevention Program on	N=2,548. United States. Year of enrolment: under age of 12 (28.5%); over age of 12. Gender: Male (58%); Female (42%). Ethnicity: African Americans (72%); Hispanics (10.3%). Native Americans and Native Hawaiians (15%); Other (2.7%).

Measure (Acronym); Published Year	Purpose*; description of measure	Number of subscales	Total items	Response options; time to complete	Reference	Study purpose	Sample characteristics Age (range [R]; Mean [M], Standard Deviation [SD], Not Reported [NR]).
						youth violence; reports on psychometri cs of SBI-R.	
School Climate Measure (SCM), 2010	Descriptive, discriminative and predictive. Measures students perceptions of school climate	8 SS: Positive Student- Teacher Relationships School Connectedness Academic Support Order and Discipline School Physical Environment School Social Environment Perceived Exclusion Privilege Academic Satisfaction	39	5 point Likert (1 – strongly disagree, 5 – strongly agree)	Zullig, Koopman, Patton & Ubbes (2010)	To develop and validate the SCM.	N=21,082. United States. Year of enrolment: Year 6 (14.4%); Year 7 (16.1%); Year 8 (14.7%); Year 9 (16.8%), Year 10 (15.8%), Year 11 (10.9%), Year 12 (11.3%). Gender: Males (50.1%); Females (49.9%); Ethnicity: White and Non Hispanic (84%); Other (5.4%); African American (2.3%), Asian (2.2%); American Indian or Alaskan Native (6.1%).
					Zullig, Collins, Ghani, Patton, Huebner & Ajamie (2014)	To further validate SCM on four domains (positive- student teacher relationship s, academic support,	N=10,253. United States. Year of enrolment: 14 years or younger (7.38%); older than 14 years (92.62%). Gender: Males (48.93%). Females (51.07%). Ethnicity: Hispanic (48.6%); Caucasian (36.1%); American Indian or Alaskan Native (4.9%), Native Hawaiian or Other Pacific Islander (1.4%); African American (6.2%), Asian (2.8%).

Measure (Acronym); Published Year	Purpose*; description of measure	Number of subscales	Total items	Response options; time to complete	Reference	Study purpose	Sample characteristics Age (range [R]; Mean [M], Standard Deviation [SD], Not Reported [NR]).
						order and discipline and physical environment) To further validate the SCM on larger sample before the addition of two new domains (see below).	N=1,643. United States. Year of enrolment: Year 9 (22.3%); Year 10 (19%), Year 11 (40.9%), Year 12 (17.8%). Gender: Males (49.6%). Females (50.4%). Ethnicity: Hispanic or Latino (61.2%), White Non-Hispanic (18.5%); African American (6.8%); Other (13.5%).
School Climate Measure (SCM) – Revised Version, 2015	See above.	10 SS: Positive Student- Teacher Relationships School Connectedness Academic Support Order and Discipline School Physical Environment	42	5 point Likert (1 – strongly disagree, 5 – strongly agree)	Zullig, Collins, Ghani, Hunter, Patton, Huebner & Zhang (2015)	To further validate the SCM on larger sample with two new domains (parental involvement and opportunitie s for student	N=1,643. United States. Year of enrolment: Year 9 (22.3%); Year 10 (19%), Year 11 (40.9%), Year 12 (17.8%). Gender: Males (49.6%). Females (50.4%). Ethnicity: Hispanic or Latino (61.2%), White Non-Hispanic (18.5%); African American (6.8%); Other (13.5%).

Measure (Acronym); Published Year	Purpose*; description of measure	Number of subscales	Total items	Response options; time to complete	Reference	Study purpose	Sample characteristics Age (range [R]; Mean [M], Standard Deviation [SD], Not Reported [NR]).
		School Social Environment Perceived Exclusion Privilege Academic Satisfaction Parental involvement Opportunities for student engagement				engagement)	

Note. * Purpose of measures: descriptive (i.e. describes current status, problems, needs and/or circumstances); discriminative (i.e. distinguishes between individuals or groups on a characteristic or underlying dimension); predictive (i.e. classifies individuals into pre-defined categories of interest), evaluative (i.e. detects magnitude of change over time within one person or a group of people after intervention) (Brown & Bourke-Taylor, 2014; Fawcett, 2007). 1 SESQ – excluded article by Lam & Jimerson (2008) which describes scale development was unable to be retrieved. 2 SEI 35 item – excluded article by Hazel, Zavirabadi, Albanes & Gallagher (2014) as unable to differentiate data completed in English and Spanish. 3 SEI 35 item – excluded Appleton & Christenson (2004) which describes scale development as it is an unpublished manuscript. 4 SPPCC – Rubie Davies (2016) altered Likert response options and wording of items therefore is considered separately from the original SPPCC version by Rowe et al (2010). 5 SBI-R – excluded manual published by Srivastava and Rodney (2003) as unable to be retrieved

Table 5*Domains and Concepts of School Connectedness Measured by Included Instrument*

	Affective			Cognitive					Behavioural						
Measure	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
PSES	X		X			X	X		X			X			X
SESQ			X			X	X	X	X		X	X	X	X	X
SEI 35 item		X	X	X	X	X	X	X		X	X	X	X		X
SEI 33 item		X	X	X	X	X	X	X		X	X	X	X		X
SEI – E		X	X	X	X	X	X	X		X	X	X	X		X
SSWQ	X	X	X			X						X			X
Developmental School Climate Survey		X	X	X	X				X	X				X	
Developmental School Climate Survey – Abbreviated		X	X	X	X				X	X				X	
SPPCC	X					X	X	X	X			X			X
SPPCC – Adapted	X					X	X	X	X			X			X

	Affective				Cognitive				Behavioural						
Measure	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Identification with School		X	X				X	X				X			
SSES		X	X			X				X		X		X	X
SBI-R	X		X		X		X					X		X	
School Climate Measure			X		X	X	X		X	X			X		X
School Climate Measure – Revised			X		X	X	X		X	X	X		X		X

Note. 1Acceptance, Inclusion and Belonging; 2 Respect; 3 Value; 4 Safety; 5Autonomy and Independence; 6Academic Self Efficacy; 7Teacher Relations & Support; 8Peer Relations & Support; 9Academic Support; 10Discipline, fairness and order; 11Value parents place on school; 12Involvement, participation and engagement; 13Effort and persistence; 14Conduct; 15Interest or motivation

Psychometric Properties

Table 6 summarises quality ratings of psychometric studies and therefore risk of bias as determined by COSMIN. All measures included in the review were found to have good to excellent study quality for internal consistency, structural validity and hypothesis testing and poor to excellent study quality for content validity. Internal consistency and structural validity were the most frequently reported properties having being described in 17 and 16 studies respectively. Content validity was described for eight measures and hypothesis testing for 10 measures. Five studies reporting on hypothesis testing, described findings for more than one hypothesis. Of the 15 included instruments, six were revisions of earlier versions of measures of school connectedness (i.e., SEI – 35 item (Appleton & Christenson, 2004), SEI – 33 item (Betts et al., 2010; Lovelace et al., 2014; Reschly et al., 2014), SEI – Elementary (Carter et al., 2012), Developmental Study Centre’s School Climate Survey – Abbreviated Version (Ding et al., 2011), SPPCC – Adapted (Rubie-Davies et al., 2016), SCM–Adapted (Zullig et al., 2015)). These measures were evaluated separately as the item pool and response format of these measures had been changed. For 11 measures only single studies were identified. The SEI (33 item version) (Betts et al., 2010; Lovelace et al., 2014; Reschly et al., 2014) and the SCM (Zullig et al., 2014; Zullig et al., 2010) had the most studies; reporting on psychometric properties in three research articles. Thirteen measures reported on two or more of six psychometric properties (average 3; range 1 – 4). The PSES (Anderson-Butcher et al., 2012) and the Developmental Study Centre’s School Climate Survey (Full Version) (Solomon et al., 2000) were the only measures to report on one psychometric property. Many measures had no published information relating to content validity including the PSES (Anderson-Butcher et al., 2012), SESQ (Hart et al., 2011), SEI – 33 item version (Betts et al., 2010; Lovelace et al., 2014; Reschly et al., 2014), Developmental Study Centre’s School Climate Survey (Full Version and Abbreviated Version) (Ding et al., 2011; Solomon et al., 2000), SBI–R and SCM

(Revised Version). The only study that was excluded from further analysis in the review was by Voekl (1996) for receiving a poor COSMIN rating for content validity.

Refer to Table 7 for a summary of the quality of psychometric properties of included measures based on Terwee et al. (2007) and Schellingerhout et al. (2012). Refer to Table 8 for a summary of the overall psychometric quality ratings per psychometric property for each measure as evaluated against Schellingerhout et al (2012) criteria. A description of the criteria used to rate overall psychometric quality can be found in the notes section of Table 8.

Table 6

Overview of the Psychometric Properties and Methodological Quality of School Connectedness Measures

Measure & Author(s)	Internal Consistency	Reliability	Measurement Error	Content Validity	Structural Validity	Hypothesis testing
PSES						
Anderson-Butcher, Amorose, Iachini & Ball (2012)	NR	NR	NR	NR	Good (75.0)	NR
SESQ						
Hart, Stewart & Jimerson (2011)	Excellent (85.7)	NR	NR	NR	Good (75.0)	Good (65.2)
SEI – 35 item version						
Appleton, Christenson, Kim & Reschly (2006)	Excellent (85.7)	NR	NR	Excellent (78.6)	Excellent (100.0)	Good (52.2)
SEI – 33 item version						
Betts, Appleton, Reschly, Christenson & Huebner (2010)	NR	NR	NR	NR	Good (75.0)	NR
Reschly, Betts & Appleton (2014)	Excellent (90.5)	NR	NR	NR	Good (66.7)	Excellent (91.3) Excellent (91.3) Excellent (87.0) Excellent (73.9) Good (69.6)

Measure & Author(s)	Internal Consistency	Reliability	Measurement Error	Content Validity	Structural Validity	Hypothesis testing
Lovelace, Reschly, Appleton & Lutz (2014)	NR	NR	NR	NR	NR	Excellent (94.1) Excellent (94.1) Excellent (87.0) Excellent (94.1)
SEI – E						
Carter et al. (2012)	Excellent (100)	NR	NR	Excellent (78.6)	Excellent (100)	Excellent (76.5) Excellent (76.5)
SSWQ						
Renshaw, Long, Cook (2014)	Excellent (100)	NR	NR	Excellent (100)	Excellent (100)	Excellent (87.0) Excellent (87.0) Excellent (87.0)
Renshaw et al. (2015)	Excellent (85.7)	NR	NR	NR	Excellent (100)	Good (65.2)
Developmental School Climate Survey – Full Version						
Solomon, Battistich, Watson, Schaps & Lewis (2000)	Good (52.4)	NR	NR	NR	NR	NR
Developmental School Climate Survey – Abbreviated Version						
Ding, Liu & Berkowitz (2011)	Excellent (85.7)	NR	NR	NR	Good (58.3)	NR
SPPCC						

Measure & Author(s)	Internal Consistency	Reliability	Measurement Error	Content Validity	Structural Validity	Hypothesis testing
Rowe, Kim, Baker, Kamphaus & Horne (2010)	Excellent (85.7)	NR	NR	Fair (42.9)	Excellent (91.7)	NR
SPPCC – Adapted Version						
Rubie Davies, Asil & Teo(2016)	Excellent (76.2)	NR	NR	Good (57.1)	Excellent (100)	Excellent (76.5)
Identification with School Questionnaire						
Voekl (1996)	Excellent (85.7)	NR	NR	Poor (21.4)	Good (75.0)	Good (58.8)
SSES						
National Centre for School Engagement (2006)	Good (57.1)	NR	NR	Good (57.1)	NR	Good (52.2) Good (64.7)
SBI – R						
Rodney, Johnson & Srivastava (2005)	Good (66.7)	NR	NR	NR	NR	Good (65.2)
SCM						
Zullig, Koopman, Patton & Ubbes (2010)	Excellent (85.7)	NR	NR	Excellent (92.9)	Good (75.0)	NR
Zullig, Collins, Ghani, Patton, Huebner & Ajamie (2014)	Excellent (100)	NR	NR	NR	Excellent (100)	Excellent (82.6)
Zullig, Collins, Ghani, Hunter, Patton, Huebner & Zhang (2015)	Excellent (85.7)	NR	NR	NR	Good (75.0)	NR

Measure & Author(s)	Internal Consistency	Reliability	Measurement Error	Content Validity	Structural Validity	Hypothesis testing
SCM – Revised						
Zullig, Collins, Ghani, Hunter, Patton, Huebner & Zhang (2015)	Excellent (85.7)	NR	NR	NR	Good (75.0)	NR

Note. The quality of the studies that evaluated the psychometric properties of each instrument was evaluated according to the COSMIN rating per item: four-point scale was used (1 = Poor, 2 = Fair, 3 = Good, 4 = Excellent). The overall methodological quality per study was presented as percentage of rating (Poor = 0–25.0%, Fair = 25.1%–50.0%, Good = 50.1%–75.0%, Excellent = 75.1%–100.0%). NR: not reported.

Table 7

Quality of Psychometric Properties Based on the Criteria by Terwee et al. (2007) and Schellingerhout (2012)

Measure & author(s)	Internal consistency	Reliability	Measurement error	Content validity	Structural validity	Hypothesis testing
PSES						
Anderson-Butcher, Amorose, Iachini & Ball (2012)	NR	NR	NR	NR	+	NR
SESQ						
Hart, Stewart & Jimerson (2011)	-	NR	NR	NR	+	?
SEI – 35 item version						
Appleton, Christenson, Kim & Reschly (2006)	+	NR	NR	+	?	?
SEI – 33 item version						
Betts, Appleton, Reschly, Christenson & Huebner (2010)	NR	NR	NR	NR	?	NR
Reschly, Betts & Appleton (2014)	+	NR	NR	NR	?	+
Lovelace, Reschly, Appleton & Lutz(2014)	NR	NR	NR	NR	NR	+
SEI – E						
Carter et al. (2012)	-	NR	NR	+	?	?
SSWQ						
Renshaw, Long & Cook (2014)	+	NR	NR	+	+	+

Measure & author(s)	Internal consistency	Reliability	Measurement error	Content validity	Structural validity	Hypothesis testing
Renshaw et al. (2015)	?	NR	NR	NR	?	?
Developmental School Climate Survey – Full Version						
Solomon, Battistich, Watson, Schaps & Lewis (2000)	?	NR	NR	NR	NR	NR
Developmental School Climate Survey – Abbreviated Version						
Ding, Liu & Berkowitz (2011)	-	NR	NR	NR	?	NR
SPPCC						
Rowe, Kim, Baker, Kamphaus & Horne (2010)	-	NR	NR	±	-	NR
SPPCC – Adapted Version						
Rubie Davies, Asil & Teo (2016)	?	NR	NR	±	?	?
Identification with School Questionnaire						
Voekl (1996)	+	NR	NR	NE	?	?
SSES						
National Centre for School Engagement (2006)	+	NR	NR	±	NR	+
SBI – R						
Rodney, Johnson & Srivastava (2005)	?	NR	NR	NR	NR	?
SCM						
Zullig, Koopman, Patton & Ubbes (2010)	+	NR	NR	+	-	NR

Measure & author(s)	Internal consistency	Reliability	Measurement error	Content validity	Structural validity	Hypothesis testing
Zullig, Collins, Ghani, Patton, Huebner & Ajamie (2014)	+	NR	NR	NR	+	+
Zullig, Collins, Ghani, Hunter, Patton, Huebner & Zhang (2015)	-	NR	NR	NR	+	NR
SCM – Revised						
Zullig, Collins, Ghani, Hunter, Patton, Huebner & Zhang (2015)	-	NR	NR	NR	+	NR

Note. Quality criteria: + = positive rating; ? = indeterminate rating; - = negative rating; ± = conflicting data; NR = not reported; NE = not evaluated (study of poor methodological quality according to COSMIN rating—data are excluded from further analyses).

Table 8

Overall Quality Score of Assessments for Each Psychometric Property Based on Levels of Evidence by Schellingerhout et al. (2012)

Measure	Internal consistency	Reliability	Measurement error	Content validity	Structural validity	Hypothesis testing
PSES	NR	NR	NR	NR	Moderate (positive)	NR
SESQ	Strong (negative)	NR	NR	NR	Moderate (positive)	Indeterminate
SEI – 35 item	Strong (positive)	NR	NR	Strong (positive)	Indeterminate	Indeterminate
SEI – 33 item	Strong (positive)	NR	NR	NR	Indeterminate	Strong (positive)
SEI – E	Strong (negative)	NR	NR	Strong (positive)	Indeterminate	Indeterminate
SSWQ	Indeterminate	NR	NR	Strong (positive)	Indeterminate	Indeterminate
Developmental School Climate Survey – Full Version	Indeterminate	NR	NR	NR	NR	NR
Developmental School Climate Survey –	Strong (negative)	NR	NR	NR	Indeterminate	NR

Measure	Internal consistency	Reliability	Measurement error	Content validity	Structural validity	Hypothesis testing
Abbreviated Version.						
SPPCC	Strong (negative)	NR	NR	Conflicting	Strong (negative)	NR
SPPCC – Adapted Version	Indeterminate	NR	NR	Conflicting	Indeterminate	Indeterminate
Identification with School Questionnaire	Strong (positive)	NR	NR	NE	Indeterminate	Indeterminate
SSES	Moderate (positive)	NR	NR	Conflicting	NR	Strong (positive)
SBI – R	Indeterminate	NR	NR	NR	NR	Indeterminate
SCM	Moderate (positive)	NR	NR	Strong (positive)	Conflicting	Strong (positive)
SCM – Revised	Strong (negative)	NR	NR	NR	Moderate (positive)	NR

Note. Levels of Evidence: Strong evidence positive/negative result = Consistent findings in multiple studies of good methodological quality OR in one study of excellent methodological quality; Moderate evidence positive/negative result = Consistent findings in multiples studies of fair methodological quality OR in one study of good methodological quality; Limited evidence positive/negative = One study of fair

Measure	Internal consistency	Reliability	Measurement error	Content validity	Structural validity	Hypothesis testing
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methodological quality; Conflicting findings; Indeterminate = only indeterminate measurement property ratings (i.e., score = ? in Table 7);

NR = Not reported; Not Evaluated = studies of poor methodological quality according to COSMIN excluded from further analyses.

Discussion

There is no universally accepted definition of school connectedness; however, the construct is referred to regularly within the literature and is a key area in informing educational policy and reform (National Center for School Engagement, 2006). The reliable and valid measurement of school connectedness is important to researchers and educators, to minimise the long term documented implications of reduced school connectedness on students' academic success and socio-emotional wellbeing through the provision of appropriate school-based supports. This systematic review provides a comprehensive summary of the quality of psychometric properties of self-report school connectedness measures available for students aged 6 to 14 years using the COSMIN taxonomy of measurement properties.

Quality of the Studies Using the COSMIN Taxonomy

Construct validity, within the COSMIN taxonomy, comprises structural validity, hypothesis testing and content validity (Mokkink, Terwee, Knol, et al., 2010). To confidently select and use measures in research it is important to understand "...how well [the] measure assesses what it claims to measure and how well it holds its meaning across varied contexts and sample groups" (Cordier, Chen, et al., 2016, p. 40). Construct validity supersedes all other psychometric properties in measurement development as it is irrelevant if an instrument has good reliability if the construct which it measures is not well established. Many instruments are currently being used to assess school connectedness or related terms. Interestingly, however, the majority of studies in this review failed to adequately define or conceptualise the construct of school connectedness. Rather, studies focused on describing the methodology they used to develop the measure, including the statistical analyses used to test psychometric properties.

A lack of conceptualisation of school connectedness has made it difficult to: (a) adequately compare measures in this review; (b) determine if included measures fully operationalise the construct of school connectedness; and (c) determine whether students sense of school connectedness has changed, or whether change is due to the evolving nature of the construct and the way it is understood currently by researchers and educators in the field. As illustrated in Table 5, none of the measures included in this review, fully capture all aspects of school connectedness and in addition, the quality of descriptions were lacking.

The majority of studies included in this review fail to explicitly state the intended purpose of the measure. That is, whether the instrument was originally intended as an outcome measure to evaluate changes over time following the implementation of school-based supports or whether it was intended purely as a diagnostic tool to identify whether school-based supports are required. Without this information, researchers and educators may make inappropriate choices and misinterpret assessment findings; leading to errors in clinical judgement. Future research should focus on developing a universal definition of school connectedness and further validate included measures.

Test-retest, inter-rater and intra-rater reliability and measurement error were not reported for any measures included in this review. Given that psychological constructs, such as school connectedness, are relatively stable over time it is important to utilise measures that have low error and are able to detect minor changes over time. Preliminary reliability testing is necessary to evaluate an instruments responsiveness. Without this information, it is difficult to make evidence based informed choices when selecting measures in research. This being said, some measures included in the review such as the SSES (National Center for School Engagement, 2006) have been used in research to evaluate changes in school connectedness over time. Although responsiveness was not evaluated in this review, researchers and

educators should exercise caution when using included measures due to a lack of information on their reliability.

Some studies included in the review reported verbal administration of measures to students who identified as using English as their second language. This method of administration places a high demand on students' expressive and receptive language skills as well as their verbal comprehension and memory recall resulting in a potential for error in the recorded true scores. Minor changes in question wording, question order or response format can result in different findings (Bowling, 2005). This method of questionnaire administration may have impacted the quality of findings in these studies. Furthermore, it is important to consider inherent bias that exists with self-report measures. Student responses may be affected by their perception of support within their school – "...they may take into account social norms when responding, which may result in social desirability bias" (Bowling, 2005, p. 287). Methods do exist to reduce this problem such as assuring students of confidentiality and anonymity; however, this can increase students suspicions about the sensitivity of the topic (Bowling, 2005). Many studies included in the review failed to explicitly state how measures were administered and/or did not report on efforts to minimise the impact of social desirability bias on data quality.

Although the focus of this review was to evaluate the psychometric properties of school connectedness measures for students aged 6 to 14 years, the samples of included studies largely comprised older students up to the age of 18 years. Students under the age of 12 years represented approximately 25% of samples in included studies. This calls into question the utility and appropriateness of these measures with younger student populations. When examining included measures in more detail, it was noted many measures had lengthy item pools. For example, the Developmental Study Centre's School Climate Survey (Full Version) (Solomon et al., 2000) and the SESQ (Hart et al., 2011) included 100 and 109 items

respectively. Not only would these measures be time consuming, they would require a great deal of concentration for a young student to complete. It is important to be able to validly and reliably assess students' sense of school connectedness in early primary school in order to identify and support at-risk students to prevent the long-term documented implications of a lack of school connectedness on student outcomes. Future research should focus on validating included measures with younger students to ensure measures are age appropriate and can be reliably and validly used in this population.

Overall Quality of Psychometric Properties

The overall quality of measurement properties critiqued in this study varied widely. The school connectedness self-report measures with the strongest psychometric properties were the SCM (Zullig et al., 2014; Zullig et al., 2015; Zullig et al., 2010) and the 35-item version of the SEI (Appleton & Christenson, 2004). The SCM (Zullig et al., 2014; Zullig et al., 2015; Zullig et al., 2010) addressed eight of 15 school connectedness components (see Table 5) and reported on four of six psychometric properties (see Table 6); scoring strong positive ratings for content validity and hypothesis testing, a moderate positive rating for internal consistency and a conflicting rating for structural validity. The 35-item version of the SEI (Appleton & Christenson, 2004) reported on four of six psychometric properties; scoring strong positive ratings for internal consistency and content validity and indeterminate ratings for structural validity and hypothesis testing. Interestingly, however, the SEI (Appleton & Christenson, 2004) addressed the most (i.e., 12 of 15) school connectedness components of any measure included in the review; suggesting that the SEI (Appleton & Christenson, 2004) not only has promising psychometrics but encompasses a broader range of school connectedness components. The school connectedness measure with the poorest psychometric properties was the SPPCC (Rubie-Davies et al., 2016), reporting on three of six psychometric properties; scoring strong negative ratings for internal consistency and structural validity, and

conflicting results for content validity. Across all measures and measurement properties there were a number of conflicting ratings (14%), many indeterminate ratings (41%), and missing data (36%); suggesting more research is required to determine the psychometric qualities of these measures.

An in-depth discussion about the statistical frameworks used in included articles is outside the scope of this review; however, it is noteworthy to draw the reader's attention to the fact that none of the measures included in this review were tested at an item level using IRT. All measures were tested using CTT. A major limitation of CTT is its relatively weak theoretical assumptions and circular dependency; that is "(a) the person statistic (i.e., observed score) is (item) sample dependent and (b) the item statistics are (examinee) sample dependent; which poses some difficulties in CTT's application in some measurement situations" (Fan, 1998, p. 1). IRT was developed to address the main limitations of CTT. However, IRT does have its own limitations in that it is a complex model requiring much larger samples of participants compared to CTT (Duong, 2004). Even with the need for larger samples when using IRT, the benefits of IRT outweigh the singular use of CTT (Duong, 2004; Fan, 1998). IRT assists in determining whether (a) a measure has any redundant items; (b) items are functioning sufficiently to adequately capture the construct of interest; and (c) the response format is operating appropriately (Fan, 1998). Future research should test included measures using IRT to gain a more in-depth understanding of measures functioning at an item level.

Limitations

Although every effort was taken to ensure the scientific rigor of this systematic review, there were a number of limitations. Information published in languages other than English were not included. Therefore, there may be some relevant findings regarding the psychometric properties of measures that were not included in this review. In addition,

authors of included studies were not contacted therefore some information may have been overlooked. Furthermore, evaluating the quality of criterion validity, cross cultural validity and responsiveness was outside the scope of this review.

Conclusion

As school connectedness is both a precursor to and an outcome of academic success, it is important to be able to reliably and validly assess students' sense of school connectedness in order to accurately identify and support at-risk students (Libbey, 2004; National Center for School Engagement, 2006). The current systematic review reported on the psychometric properties of 15 self-report school connectedness measures for students aged between 6 and 14 years of age. The measures with the strongest psychometric properties was the SCM and the 35-item version SEI exploring 8 and twelve (of 15) school connectedness components respectively. This systematic review highlighted the need for further research to examine the psychometric properties of existing school connectedness measures that were identified as having moderate to strong positive evidence.

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Supplementary Information

SI File

Excluded Publications and Reasons for Exclusion

SI Table 1

PRISMA 2009 Checklist

SI Table 2

Search Terms

SI Table 3

Overview of School Connectedness Instruments: Reasons for Exclusion

S1 File

Excluded Publications and Reasons for Exclusion

An article published by Lam & Jimerson (2008) which describes the development of the Student Engagement in Schools Questionnaire (SESQ) was excluded as it was unable to be retrieved.

An article by Hazel, Zavirabadi, Albanes & Gallagher (2014) about the 35-item version of the SEI was excluded as authors were unable to differentiate data completed in English and Spanish.

An article by Appleton & Christenson (2004) describing the development of the 35-item version of the SEI was excluded as it was an unpublished manuscript.

Authors excluded the Student Bonding Index–Revised manual published by Srivastava and Rodney (2003) as it was unable to be retrieved.

SI Table 1*PRISMA 2009 Checklist*

Section/ Topic	#	Checklist Item	Page
TITLE			
Title	1	Identify the report as a systematic review, meta-analysis, or both.	1
ABSTRACT			
Structured summary	2	Provide a structured summary including, as applicable: background; objectives; data sources; study eligibility criteria, participants, and interventions; study appraisal and synthesis methods; results; limitations; conclusions and implications of key findings; systematic review registration number.	1
INTRODUCTION			
Rationale	3	Describe the rationale for the review in the context of what is already known.	3-6
Objectives	4	Provide an explicit statement of questions being addressed with reference to participants, interventions, comparisons, outcomes, and study design (PICOS).	6
METHODS			
Protocol and registration	5	Indicate if a review protocol exists, if and where it can be accessed (e.g., Web address), and, if available, provide registration information including registration number.	6
Eligibility criteria	6	Specify study characteristics (e.g., PICOS, length of follow-up) and report characteristics (e.g., years considered, language, publication status) used as criteria for eligibility, giving rationale.	7
Information sources	7	Describe all information sources (e.g., databases with dates of coverage, contact with study authors to identify additional studies) in the search and date last searched.	7

Section/ Topic	#	Checklist Item	Page
Search	8	Present full electronic search strategy for at least one database, including any limits used, such that it could be repeated.	8-9
Study selection	9	State the process for selecting studies (i.e., screening, eligibility, included in systematic review, and, if applicable, included in the meta-analysis).	10
Data collection process	10	Describe method of data extraction from reports (e.g., piloted forms, independently, in duplicate) and any processes for obtaining and confirming data from investigators.	10-11
Data items	11	List and define all variables for which data were sought (e.g., PICOS, funding sources) and any assumptions and simplifications made.	11
Risk of bias in individual studies	12	Describe methods used for assessing risk of bias of individual studies (including specification of whether this was done at the study or outcome level), and how this information is to be used in any data synthesis.	11
Summary measures	13	State the principal summary measures (e.g., risk ratio, difference in means).	12-14
Synthesis of results	14	Describe the methods of handling data and combining results of studies, if done, including measures of consistency (e.g., I^2) for each meta-analysis.	12-14
Risk of bias across studies	15	Specify any assessment of risk of bias that may affect the cumulative evidence (e.g., publication bias, selective reporting within studies).	11
Additional analyses	16	Describe methods of additional analyses (e.g., sensitivity or subgroup analyses, meta-regression), if done, indicating, which were pre-specified.	20
RESULTS			
Study selection	17	Give numbers of studies screened, assessed for eligibility, and included in the review, with	15-20

Section/ Topic	#	Checklist Item	Page
		reasons for exclusions at each stage, ideally with a flow diagram.	
Study characteristics	18	For each study, present characteristics for which data were extracted (e.g., study size, PICOS, follow-up period) and provide the citations.	21-25
Risk of bias within studies	19	Present data on risk of bias of each study and, if available, any outcome level assessment (see item 12).	N/A
Results of individual studies	20	For all outcomes considered (benefits or harms), present, for each study: (a) simple summary data for each intervention group (b) effect estimates and confidence intervals, ideally with a forest plot.	21-25
Synthesis of results	21	Present results of each meta-analysis done, including confidence intervals and measures of consistency.	28-33
Risk of bias across studies	22	Present results of any assessment of risk of bias across studies (see Item 15).	N/A
Additional analysis	23	Give results of additional analyses, if done (e.g., sensitivity or subgroup analyses, meta-regression [see Item 16]).	26
DISCUSSION			
Summary of evidence	24	Summarize the main findings including the strength of evidence for each main outcome; consider their relevance to key groups (e.g., healthcare providers, users, and policy makers).	34-36
Limitations	25	Discuss limitations at study and outcome level (e.g., risk of bias), and at review-level (e.g., incomplete retrieval of identified research, reporting bias).	36
Conclusions	26	Provide a general interpretation of the results in the context of other evidence, and implications for future research.	36
FUNDING			

Section/ Topic	#	Checklist Item	Page
Funding	27	Describe sources of funding for the systematic review and other support (e.g., supply of data); role of funders for the systematic review.	1

SI Table 2*Search Terms*

	Initial search: Assessment retrieval Database and Search Terms (Subject Headings and Free Text Words)	Limits	No. of records
Subject Heading s	CINAHL: ((MH "Students, High School") OR (MH "Students") OR (MH "Students, Middle School") OR (MH "Students, Elementary") OR (MH "Adolescence") OR (MH "Child") OR (MH "Schools, Middle") OR (MH "Schools, Secondary") OR (MH "Schools, Elementary") OR (MH "Schools") OR (MH "Child, Preschool") OR (MH "Early Intervention") OR (MH "Early Childhood Intervention") OR (MH "Education")) AND ((MH "Social Inclusion") OR (MH "Social Participation") OR (MH "Social Adjustment") OR (MH "Social Attitudes") OR (MH "Membership") OR (MH "Commitment") OR (MH "Social Involvement (Iowa NOC)") OR (MH "Social Inclusion") OR (MH "Student Experiences") OR (MH "Social Participation") OR (MH "Student Attitudes") OR (MH "Social Adjustment"))AND ((MH "Outcome Assessment") OR (MH "Patient Assessment") OR (MH "Self Assessment") OR (MH "Psychological Tests") OR (MH "Research Measurement") OR (MH "Scales") OR (MH "Questionnaires") OR (MH "Research Instruments") OR (MH "Treatment Outcomes") OR (MH "Evaluation") OR (MH "Evaluation Research") OR (MH "Self Assessment") OR (MH "Patient Assessment"))) AND ((MH "Psychometrics") OR (MH "Measurement Issues and Assessments") OR (MH "Validity") OR (MH "Predictive Validity") OR (MH "Reliability and Validity") OR (MH "Internal Validity") OR (MH "Face Validity") OR (MH "External Validity") OR (MH "Discriminant Validity") OR (MH "Criterion-Related Validity") OR (MH "Consensual Validity") OR (MH "Concurrent Validity") OR	NA	486

Initial search: Assessment retrieval	Limits	No. of
Database and Search Terms (Subject Headings and Free Text Words)		records
(MH "Qualitative Validity") OR (MH "Construct Validity") OR (MH "Content Validity") OR (MH "Instrument Validation") OR (MH "Validation Studies") OR (MH "Test-Retest Reliability") OR (MH "Sensitivity and Specificity") OR (MH "Reproducibility of Results") OR (MH "Reliability") OR (MH "Intrarater Reliability") OR (MH "Interrater Reliability") OR (MH "Measurement Error") OR (MH "Bias (Research)") OR (MH "Selection Bias") OR (MH "Sampling Bias") OR (MH "Precision") OR (MH "Sample Size Determination") OR (MH "Repeated Measures"))		
Embase: (Student/ OR Adolescent/ OR Adolescence/ OR Child/ OR Juvenile/ OR School/ OR Preschool child/ OR early intervention/ OR Education/) AND (emotional attachment/ OR social environment/ OR Experience/ OR Attitude/ OR Adjustment/) AND (measurement/ or diagnostic procedure/ or rating scale/ or screening/ or screening test/ or questionnaire/ or outcome assessment/ or evaluation study/) AND (psychometry/ or validity/ or reliability/ or measurement error/ or measurement precision/ or measurement repeatability/ or error/ or statistical bias/ or test retest reliability/ or intrarater reliability/ or interrater reliability/ or accuracy/ or criterion validity/ or internal validity/ or face validity/ or external validity/ or discriminant validity/ or concurrent validity/ or qualitative validity/ or construct validity/ or content validity/)	NA	454
ERIC: (DE "Students" OR DE "High School Students" OR DE "Secondary School Students" OR DE "Middle School Students" OR DE "Junior High School Students" OR DE "Elementary School Students" OR DE "Classes (Groups of Students)") OR DE "Late Adolescents" OR DE "Early Adolescents" OR DE "Adolescents" OR DE "Children" OR DE "Youth" OR DE "Preschool	NA	603

Initial search: Assessment retrieval	Limits	No. of
Database and Search Terms (Subject Headings and Free Text Words)		records
<p>Education" OR DE "Preschool Children" OR DE "Early Intervention" OR DE "Kindergarten" OR DE "Preschool Children" OR DE "Early Childhood Education" OR DE "Elementary Secondary Education" OR DE "Educational Environment" OR DE "Educational Experience" OR DE "Schools" OR DE "Primary Education" OR DE "Elementary Schools") AND (DE "Group Membership" OR DE "Group Experience" OR DE "Learner Engagement" OR DE "Educational Environment" OR DE "Classroom Environment" OR DE "School Community Relationship" OR DE "School Involvement" OR DE "Student Participation" OR DE "Peer Acceptance" OR DE "Inclusion" OR DE "Early Experience" OR DE "Educational Experience" OR DE "Group Experience" OR DE "Learning Experience" OR DE "Social Experience" OR DE "Student Experience" OR DE "School Involvement" OR DE "Student Participation" OR DE "Student Attitudes" OR DE "School Attitudes" OR DE "Student Adjustment" OR DE "Student School Relationship") AND (DE "Evaluation" OR DE "Evaluation Methods" OR DE "Measurement" OR DE "Measurement Instruments (1966 1980)" OR DE "Measurement Techniques" OR DE "Testing" OR DE "Tests" OR DE "Rating Scales" OR DE "Screening Tests" OR DE "Questionnaires" OR DE "Outcome Measures" OR DE "Evaluation" OR DE "Evaluation Methods" OR DE "Measures (Individuals)") AND (DE "Psychometrics" OR DE "Validity" OR DE "Reliability" OR DE "Error of Measurement" OR DE "Bias" OR DE "Interrater Reliability" OR DE "Accuracy" OR DE "Predictive Validity" OR DE "Construct Validity" OR DE "Content Validity")</p>		

Initial search: Assessment retrieval	Limits	No. of records
Database and Search Terms (Subject Headings and Free Text Words)		
<p>Medline: (Students/ OR Adolescent/ OR Child/ OR Schools/ OR "Early Intervention (Education)"/ OR Education/) AND ((school.ti OR school.ab.) AND ((connectedness OR belonging* OR membership* OR bond*OR attachment* OR engage* OR climate* OR communit* OR affiliat* OR commitment* OR involve* OR disconnect* OR accept* OR experience* OR pride* OR value* OR inclusion* OR participat* OR orientat*).ti. OR (connectedness OR belonging* OR membership* OR bond*OR attachment* OR engage* OR climate* OR communit* OR affiliat* OR commitment* OR involve* OR disconnect* OR accept* OR experience* OR pride* OR value* OR inclusion* OR participat* OR orientat*).ab.)) AND (measurement/ or diagnostic procedure/ or rating scale/ or screening/ or screening test/ or questionnaire/ or outcome assessment/ or evaluation study/) AND (psychometrics/ OR "Bias (Epidemiology)"/)</p>	NA	428
<p>PsycINFO: (DE "Classmates" OR DE "Elementary School Students" OR DE "High School Students" OR DE "Junior High School Students" OR DE "Kindergarten Students" OR DE "Preschool Students" OR DE "Kindergartens" OR DE "Classroom Environment" OR DE "Schools" OR DE "Early Intervention" OR DE "Elementary Education" OR DE "High School Education" OR DE "Middle School Education" OR DE "Preschool Education" OR DE "Private School Education" OR DE "Public School Education" OR DE "Secondary Education" OR DE "School Adjustment" OR DE "School Environment") AND (DE "Belonging" OR DE "Membership" OR DE "Attachment Behaviour" OR DE "Student Engagement" OR DE "Psychological Engagement" OR DE "School Environment" OR DE "Classroom Environment" OR DE "Sense of Community" OR</p>	NA	174

	Initial search: Assessment retrieval Database and Search Terms (Subject Headings and Free Text Words)	Limits	No. of records
	DE "Community Attitudes" OR DE "Affiliation Motivation" OR DE "Commitment" OR DE "Involvement" OR DE "Group Participation" OR DE "Social Acceptance" OR DE "Mainstreaming (Educational)" OR DE "Emotional States" OR DE "Participation" OR DE "Group Participation" OR DE "Adolescent Attitudes" OR DE "Child Attitudes" OR DE "Student Attitudes" OR DE "Emotional Adjustment" OR DE "School Adjustment" OR DE "Social Adjustment") AND (DE "Measurement" OR DE "Testing Methods" OR DE "Test Scores" OR DE "Scaling (Testing)" OR DE "Rating Scales" OR DE "Screening" OR DE "Screening Tests" OR DE "Questionnaires" OR DE "Evaluation") AND (DE "Psychometrics" OR DE "Statistical Validity" OR DE "Test Validity" OR DE "Statistical Reliability" OR DE "Test Reliability" OR DE "Error of Measurement" OR DE "Errors" OR DE "Response Bias" OR DE "Interrater Reliability" OR DE "Repeated Measures")		
Free Text	CINAHL: (student* OR adolescen* OR pupil* OR teen* OR child* OR learner* OR youth* OR juvenile* OR school* OR class* OR preschool* OR pre-school* OR (early AND intervention*) OR kindergarten* OR education*) AND (TI school OR AB school) AND (TI (connectedness OR belonging* OR membership* OR bond*OR attachment* OR engage* OR climate* OR communit* OR affiliat* OR commitment* OR involve* OR disconnect* OR accept* OR experience* OR pride* OR value* OR inclusion* OR participat* OR orientat*) OR AB (connectedness OR belonging* OR membership* OR bond*OR attachment* OR engage* OR climate* OR communit* OR affiliat* OR commitment* OR involve* OR disconnect* OR accept* OR experience* OR pride* OR value* OR inclusion* OR participat* OR orientat*)) AND (assessment* OR measure*	Publication date: 01/06/2015 – 13/06/2016	52

Initial search: Assessment retrieval	Limits	No. of
Database and Search Terms (Subject Headings and Free Text Words)		records
OR questionnaire* OR test OR tests OR scale* OR screening* OR evaluation* OR questionnaire* OR evaluation*) AND (psychometric* OR reliability OR validit* OR reproducibility OR bias OR responsiveness)		
Embase: <i>As per CINAHL free text</i>	Publication date: '2015-Current'	411
ERIC: <i>As per CINAHL free text</i>	Publication date: 01/06/2015 – 13/06/2016	95
Medline: <i>As per CINAHL free text</i>	Publication date: '2015-Current'	442
PsycINFO: <i>As per CINAHL free text</i>	Publication date: 01/06/2015 – 13/06/2016	306

SI Table 3*Overview of School Connectedness Instruments: Reasons for Exclusion*

Assessment name	Abbreviation	Reason for exclusion
Psychological Sense of School Membership Scale (Goodenow, 1993b)	PSSMS	Not a measure of school connectedness (did not address behavioural domain)
Psychological Sense of School Membership Scale – Brief (1998)	N/A	Not a measure of school connectedness (did not address behavioural domain)
What’s Happening In This School – 49 items (2013)	WHITS	Not a measure of school connectedness (did not address behavioural domain; validated only with high school students)
What’s Happening In This Class – 70 items (1996)	WIHIC	Validated with high school sample only
What’s Happening In This Class – 56 items (1996)	WIHIC	Validated with high school sample only
What’s Happening In This Class – 20 items (1996)	WIHIC	Specific to subject or particular aspect of school
Perceived Environment Profile (1970)	PEP	Does not have recent published psychometrics (>1996)
Perceptions of School Social Climate (2010)	N/A	Validated with high school sample only
I Like School (2003)	N/A	Not developed in English
Classroom Peer Context Questionnaire (2016)	CPCQ	Not a measure of school connectedness (addressed <5 of 15 components of school connectedness)
Classroom Environment Scale (2002)	CES	Not a measure of school connectedness (validated only with high school students, not student self-report)
Elementary School Success Profile (2006)	N/A	Not specific to school context

Assessment name	Abbreviation	Reason for exclusion
Scale of Teachers Perception of School Adjustment (2015)	PROF-A	Not developed in English
California School Climate and Safety Survey (2005)	N/A	Not a measure of school connectedness (addressed <5 of 15 components of school connectedness; did not address behavioural domain)
Unnamed (French language questionnaire to measure students perceptions of school context) (2005)	N/A	Not developed in English
Quality of Life In School (1981)	QoLS	Not developed in English
Adolescents Sense of Wellbeing Related to Stress (2008)	N/A	Not specific to school context
Classroom Learning Environment of Elementary Students Questionnaire (2009)	CLEES	Not a measure of school connectedness (not student self-report)
Student Support and Student Engagement Scales (2015)	N/A	Validated with high school sample only
Social Participation Questionnaire (2008)	N/A	Specific to children with disabilities
Student Engagement in School Scale (2014)	N/A	Not a measure of school connectedness (addressed <5 of 15 components of school connectedness)
Student Engagement Scale (2016)	N/A	Unable to contact author to request copy of full scale

Assessment name	Abbreviation	Reason for exclusion
McInerneys Facilitating Conditions Questionnaire (1991)	FCQ	Not a measure of school connectedness (addressed <5 of 15 components of school connectedness)
Student Engagement Instrument – Portuguese adaptation (2004)	N/A	Validated with high school students only.
Classroom Climate Inventory (1981)	N/A	Does not have recent published psychometrics (>1996)
Quality of School Life (2001)	QSL	Unable to contact author to request copy of full scale
School Social Climate Questionnaire (2011)	CECSCE	Not developed in English
Individualised Classroom Environment Questionnaire (1980)	ICEQ	Not a measure of school connectedness (addressed <5 of 15 components of school connectedness)
Brief Survey of School Bonding (2015)	N/A	Not a measure of school connectedness (did not address behavioural domain)
Unnamed (assesses five aspects of psychosocial classroom environment) (2005)	N/A	Not a measure of school connectedness (not student-self report)
School Climate Profile Charles Kettering Ltd. (1973)	CFK	Does not have recent published psychometrics (>1996)
School Attitude Assessment Survey (2000)	SAAS	Validated with high school sample only
Students Sense of the School As a Community (1995)	N/A	Does not have recent published psychometrics (>1996)
Climate4Creativity Student Perspectives Instrument –	N/A	Unpublished doctoral dissertation

Assessment name	Abbreviation	Reason for exclusion
Elementary and Middle School Version (2015)		
Sense of Belonging to School Scale (2013)	SEBES	Unable to contact author to request copy of full scale
School Connectedness Survey (2011)	N/A	Unpublished doctoral dissertation
Constructivist-Oriented Learning Environment Survey (2014)	COLES	Validated with high school sample only
Unnamed – six items on satisfaction with school (2013)	N/A	Not developed in English
Unnamed – place identification (2010)	N/A	Unable to contact author to request copy of full scale
Hemingway Measure of Adolescent Connectedness (2010)	N/A	Not specific to school context
Questionnaire on Feedback, Identification and School Trajectories (2015)	QFITE	Not developed in English
Elementary School Ethical Climate Survey (2007)	N/A	Not a measure of school connectedness (not student self report)
School Connectedness Scale (2008)	N/A	Validated with high school sample only
Social-Relational Support for Education Instrument (2014)	N/A	Not a measure of school connectedness (did not address behavioural domain)
Unnamed – three scales from Add Health Survey (2001)	N/A	Not a measure of school connectedness (did not address behavioural domain)

Assessment name	Abbreviation	Reason for exclusion
Georgia Brief School Climate Inventory (2014)	GaBSCI	Not a measure of school connectedness (did not address behavioural domain)
School Engagement Measure (2005)	N/A	Not a measure of school connectedness (addressed <5 of 15 components of school connectedness)
Invitational School Survey (2004)	N/A	Not a measure of school connectedness (addressed <5 of 15 components of school connectedness)
Motivation and Engagement Scale- High School (2007)	MES-HS	Not a measure of school connectedness (addressed <5 of 15 components of school connectedness)
Attitudes to School (1973)	N/A	Does not have recent published psychometrics (>1996)
The Belonging Scale (2007a)	N/A	Not a measure of school connectedness (addressed <5 of 15 components of school connectedness; did not address behavioural domain; validated with high school students only)
Multidimensional Students Life Satisfaction (1991)	N/A	Not specific to school context
California School Climate Health and Learning Survey (1991)	N/A	Validated with high school students only
Quality of School Life (1981)	N/A	Does not have recent published psychometrics (>1996)
The Saskatchewan School Climate Scale (1996)	N/A	Not a measure of school connectedness (addressed <5 of 15 components of school connectedness)
Engagement Versus Disaffection with Learning – Student Report (2009)	N/A	Not a measure of school connectedness (addressed <5 of 15 components of school connectedness)
The Behavioural Emotional Cognitive	BEC-SES	Not a measure of school connectedness

Assessment name	Abbreviation	Reason for exclusion
School Engagement Scale (1995)		(addressed <5 of 15 components of school connectedness)
Unnamed – school engagement scale (2011)	N/A	Not a measure of school connectedness (addressed <5 of 15 components of school connectedness; validated with high school students only)
School Success Profile (2006)	SSP	Unable to contact author and request copy of full scale
Commitment to School Scale (1991)	N/A	Not a measure of school connectedness (did not address cognitive domain)
School Connection Scale (2000)	N/A	Not a measure of school connectedness (did not address behavioural domain; validated with high school students only)
School Belonging Scale (2002)	N/A	Not a measure of school connectedness (did not address behavioural domain)
Subjective Adjustment Scale (2005)	N/A	Not developed in English
Socio-Emotional Health Survey (2005)	N/A	Not specific to school context
Young Children's Appraisal of Teacher Support (2003)	N/A	Not a measure of school connectedness (addressed <5 of 15 components of school connectedness)
Dimensions of Self Concept (1976)	N/A	Not a measure of school connectedness (addressed <5 of 15 components of school connectedness; did not address behavioural domain)
Unnamed – student school attitude (1975)	N/A	Does not have recent published psychometrics (>1996)
Student Attitude Survey (1976)	N/A	Does not have recent published psychometrics (>1996)

Assessment name	Abbreviation	Reason for exclusion
Instructional Climate Survey Form – Student Version (1988)	N/A	Not a measure of school connectedness (did not address behavioural domain)
Quality of School Life	N/A	Validated with high school students only.
Classroom Life Instrument (1983)	CLI	Does not have recent published psychometrics (>1996)
Student School Engagement Measure (2013)	SSEM	Met eligibility criteria however unable to differentiate between sample that completed Spanish translated version and English version from the data set.
School Attitude Questionnaire (2011)	SAQ	Not developed in English.

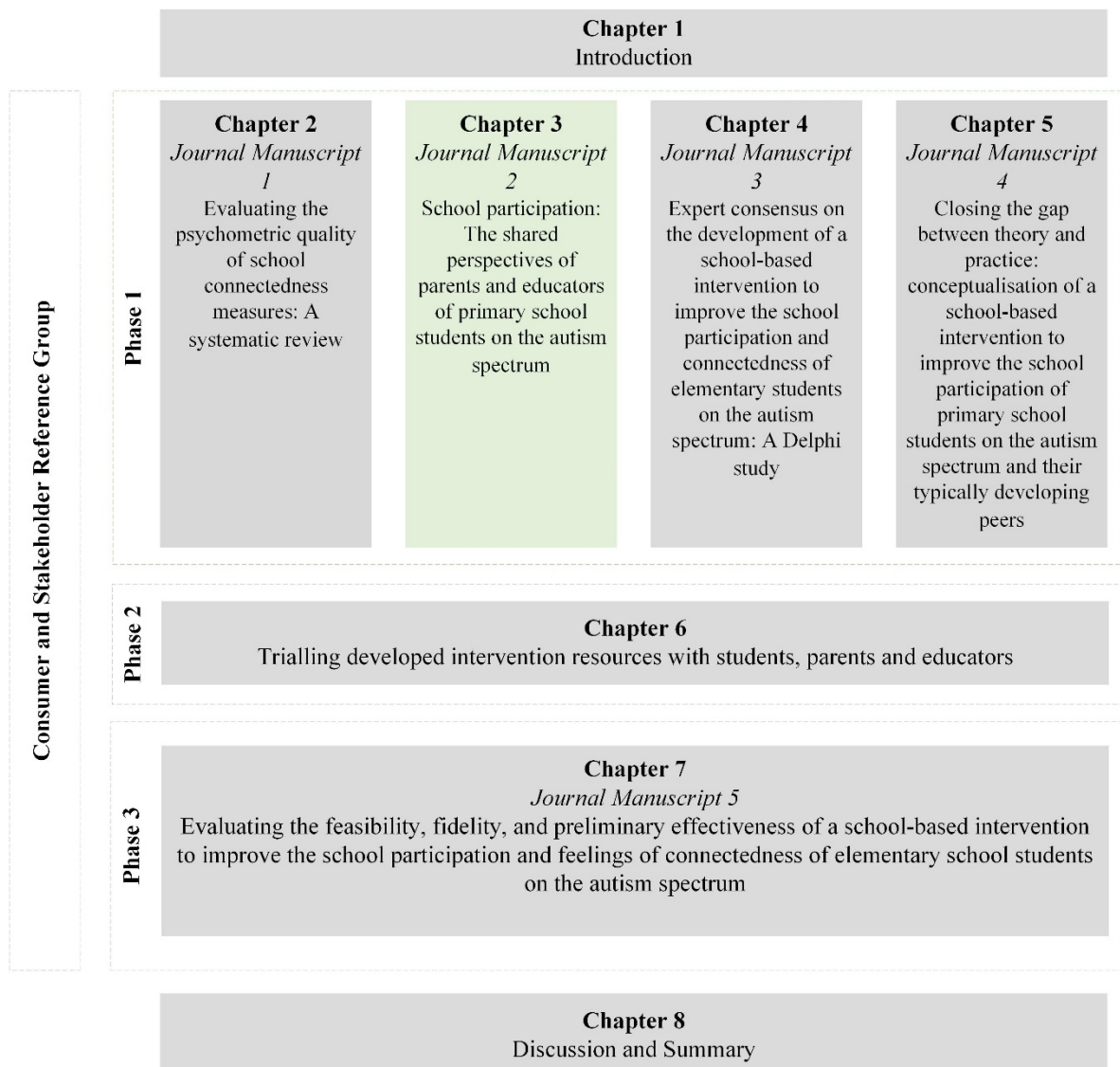
Chapter 3: Exploring the Perspectives of Parents and Educators on the School

Participation of Primary School Students on the Autism Spectrum

Chapter 3 details findings from focus groups that explored the perspectives of parents and educators on the school participation of primary school students on the autism spectrum. General recommendations regarding the content, delivery and feasibility of the school-based intervention were also sought from parent and educators, however these findings are reported in Chapter 5 (see Figure 7).

Figure 7

Outline of Thesis, with Chapter 3 Highlighted



Focus group findings helped to verify and enrich relationships depicted in the Model of School Participation and Autism (MSPA) and provided further evidence to support the development of an intervention that aims to improve the school participation and connectedness of primary school students on the autism spectrum. Focus group findings also helped to guide avenues of questioning in the next research activity, which involved a nationally recruited Delphi study. Refer to Appendix C for parent and educator participant information sheets and consent forms, demographic questionnaires and focus group guides. The manuscript was accepted for publication in *Research in Developmental Disabilities* on the 30th November 2019 and has been published:

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The journal article has been presented as a Microsoft Word document and formatted according to American Psychological Association 7th edition (2019) guidelines, consistent with traditional Chapters in the thesis. All references for this Chapter have been listed at the end of the journal article.

Journal Manuscript 2

School participation: The shared perspectives of parents and educators of primary school students on the autism spectrum.

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Abstract

Background: An international focus on the inclusion of students with disabilities in mainstream schools and the increased prevalence of Autism Spectrum Disorder (ASD) has contributed to increasing numbers of students with ASD enrolling in mainstream schools. The school participation restrictions of adolescent students with ASD is widely researched, but less is known about the challenges faced by primary school students with ASD and how early in their schooling these challenges arise. *Methods:* Focus groups were used to explore the perspectives of parents and educators on the school participation of primary school students with ASD. Focus group data were analysed thematically. *Results:* Four themes were derived from the data: (1) more than just being there; (2) meeting in the middle; (3) consistency of supports; and (4) embrace difference. *Conclusions:* Findings from this study highlight that students aged between 6 and 11 years' experience school participation restrictions due to a range of intrinsic (e.g., sense of self and school belonging) and extrinsic factors (e.g., school culture, educator knowledge and skills). It is imperative school-based interventions are developed and implemented in the early primary years that not only target students' skills, but the range of environmental enablers and barriers impacting student school participation.

Keywords: autism spectrum disorder; qualitative research; school participation; mainstream; primary school; perspectives.

Highlights

- Students with ASD experience barriers to their participation in mainstream schools.
- School culture and belonging are factors that lead to participation restrictions.
- Conflicting stakeholder expectations impact efforts to support participation.
- Failure to embrace difference impacts all students with diverse learning needs.
- Interventions to improve participation and belonging are vital in primary years.

What this Paper Adds?

There is limited information about the school participation restrictions of primary students with ASD and as a result limited mechanisms available to support their participation in the early primary school years. This study offers unique insights into the experiences and challenges of primary school students with ASD from the shared perspective of parents and educators. Recommendations regarding the development of school-based interventions aiming to improve school participation are also explored; including strategies to improve school culture and the use of evidence based intervention techniques such as peer mediation. This study emphasises the importance of intervening in the early primary years to minimise or prevent the long term implications of reduced school participation on student outcomes.

Introduction

An international focus on the inclusion of students with disabilities in mainstream school and the increased prevalence of ASD has contributed to increasing numbers of students with ASD enrolling in mainstream schools (Australian Bureau of Statistics, 2016; Frederickson, Simmonds, Evans, & Soulsby, 2007). While there has been positive change in the last decade toward the inclusion and provision of supports for students with ASD in mainstream settings, international and Australian research suggests students with ASD continue to encounter a range of barriers to their participation in mainstream schools (Batten et al., 2006; Lilley, 2012; McDonald, 2010).

According to the family of Participation and Related Constructs (fPRC), developed by Imms and colleagues (2016), participation is comprised of two essential components: “attendance, defined as ‘being there’ and measured as frequency of attending, and/or the range or diversity of activities; and involvement, the experience of participation while attending” (Imms et al., 2016, p. 18). In the context of education, this means being actively engaged in activities, tasks and routines that are typical for students of that age in a given education system, as well as a subjective feeling of belonging to, and being active in the school environment (Libbey, 2004). Merely being present in a mainstream classroom does not lead to participation and is not indicative of successful inclusion (Symes & Humphrey, 2012). Frederickson et al. (2007) found primary school students with special educational needs (SEN), including ASD, to be more likely to experience bullying and social exclusion from peers. This study highlighted that without structured supports such as peer preparation in the early years, inclusion cannot be achieved. Despite legislation that requires education systems to make reasonable adjustments to ensure students with ASD are included in mainstream settings (UNESCO, 1994), there is growing concern about the education experiences of students with ASD (Chen & Schwartz, 2012; Hebron & Humphrey, 2012; Zablotzky,

Bradshaw, & Andersen, 2013). Future research is required that goes beyond the numbers of students included, but that explores the experiences of students with ASD in mainstream classrooms to better understand their social and affective outcomes (Frederickson et al., 2007).

Many studies have explored the participation experiences of adolescent students with ASD in mainstream schools (Hedges et al., 2014; Sagers et al., 2011). Many adolescent students with ASD under achieve relative to their cognitive abilities (Ashburner et al., 2008); have higher rates of absenteeism, suspension and exclusion from school (Barnard et al., 2000; Osler & Osler, 2002); spend less time interacting and have lower quality of interactions with peers (Sigman et al., 1999); and require a higher level of one to one assistance from aides than peers (Bauminger & Kasari, 2000). These challenges make students with ASD more vulnerable to bullying compared to typically developing peers (Jones & Frederickson, 2010), resulting in disruption to educational progress (Batten et al., 2006), reduced self-esteem (Batten et al., 2006) and mental health difficulties (Batten et al., 2006; Cappadocia, Wiess, & Pepler, 2012; Hebron & Humphrey, 2012; Penney, 2013; Zablotzky et al., 2013).

Less is known about the school participation of primary students with ASD resulting in limited supports to address their participation restrictions. Studies that have explored the participation of primary school aged children have done so primarily outside of the school context or have focused on the impact specific child factors such as language, cognition and adaptive functioning have on students activity participation in a range of contexts, including school (Little, Ausderau, Sideris, & Baranek, 2015; Orsmond & Kuo, 2011). In addition to student needs, there is limited knowledge and insight about the challenges faced by parents and educators working with students with ASD in mainstream primary schools (Hedges et al., 2014). There has been a call for more qualitative research in the field of ASD generally and specifically for qualitative research on educational participation to better understand how to

support students with ASD to participate in mainstream settings (Falkmer et al., 2012; Humphrey & Lewis, 2008). Given the reported impact reduced school participation has in adolescence, it is imperative to understand the school participation experiences of primary school students with ASD and how early challenges arise, so that efforts can be made to intervene early to minimise or prevent the long term implications of reduced school participation on student outcomes.

The purpose of this study was to analyse parents and educators perspectives on the experiences and challenges impacting the participation of primary school students with ASD and if challenges exist, how early they arise in students schooling. To date, there has been limited studies that explore both parent and educator perspectives in view of identifying challenges and seeking solutions. Parents have an in depth understanding of their child, their ASD characteristics and how these may impact their child's school participation. While, educators are experts in the curriculum and have insight into school factors that may impact students' school participation. Exploring both of their perspectives was imperative in gaining a holistic understanding of the school participation of students with ASD and therefore establishing priorities for the development of school-based interventions to proactively support students with ASD in the early primary years.

Methods

This qualitative study used focus groups to explore the perspectives of parents and educators of primary students with ASD. Focus groups are suitable when examining sensitive issues as participants may feel more relaxed about sharing their experiences when they see that others have similar views or experiences to them (Liamputtong, 2013). The group process encourages participants to identify and clarify their experiences and opinions in ways that may not be captured in individual interviews (Liamputtong, 2013, 2017; Tausch & Menold, 2016). Furthermore, commonalities and differences in participants thoughts can be made

more apparent in focus groups when multiple stakeholders with different perspectives are available (Liamputtong, 2011). We aimed to conduct an interactive discussion that would provide an in-depth understanding of the primary school experiences of students with ASD from the shared perspectives of parents and educators.

Participants

Parents of a child with a parent-report diagnosis of ASD as determined by the Diagnostic and Statistical Manual of Mental Disorders (DSM-5) (American Psychiatric Association, 2013) currently enrolled in a mainstream primary school and educators (e.g., teachers, learning support coordinators and/or principals) with self-reported previous experience with primary school students with ASD were eligible to participate. Participants were recruited purposively from the Perth metropolitan area using a variety of methods including: emails to parents of children with ASD attending mainstream primary school that access school aged services through Autism Association of Western Australia (AAWA), emails to principals of Catholic Education and Association of Independent Schools Western Australia (AISWA) mainstream primary schools; advertisements on social media and snowball sampling through targeted contact with parents and educators. Participation in the study was voluntary and written informed consent was obtained from all participants prior to participation. Ethics approval for the study was obtained from the Human Research Ethics Committee (HREC) of Curtin University (HREC2016-0150) and the Catholic Education Office of Western Australia.

Four separate focus groups with a total of 26 participants were conducted in the Perth metropolitan area. Two of the focus groups were conducted with a total of 15 parents of children with ASD who were attending mainstream primary school. Two focus groups were conducted with a total of 11 educators including teachers, deputy principals and learning support coordinators who reported having experience working with primary school students

with ASD in a mainstream setting. Table 9 includes demographic information about participants according to their respective roles.

Table 9

Focus Group Participant Demographics by Role

	Parents (n=15) Group 1, n=7 Group 2, n=8	Educators (n=11) Group 1, n=6 Group 2, n=5
Age		
20—29 years		2 (18.2%)
30—39 years	5 (33.3%)	6 (54.5%)
40—49 years	9 (60.0%)	-
50—59 years	1 (6.7%)	2 (18.2%)
60 years and older		1 (9.1%)
Gender		
Male	2 (13.3%)	-
Female	13 (86.7%)	11 (100.00%)
Marital status		
Never married	1 (6.6%)	-
Divorced	1 (6.7%)	
Married	12 (80.0%)	-
Defacto	1 (6.7%)	
Number of children in family		
Two	12 (80.0%)	-
Three	2 (13.3%)	-
Four	1 (6.7%)	-
School grade and child age		
Year 1 (6 years)	4 (26.7%)	-
Year 3 (8 years)	2 (13.3%)	-
Year 4 (9 years)	3 (20.0%)	-
Year 5 (10 years)	1 (6.7%)	-

	Parents (n=15)	Educators (n=11)
	Group 1, n=7	Group 1, n=6
	Group 2, n=8	Group 2, n=5
Year 6 (11 years)	5 (33.3%)	-
Years of experience in current role		
0—1 years	-	-
2—3 years	-	2 (18.2%)
4—5 years	-	3 (27.3%)
6—7 years	-	3 (27.3%)
8—9 years	-	-
More than 10 years	-	3 (27.2%)
Years of experience working with students with ASD		
0—1 years	-	1 (9.1%)
2—3 years	-	2 (18.2%)
4—5 years	-	5 (45.4%)
6—7 years	-	1 (9.1%)
8—9 years	-	-
More than 10 years	-	2 (18.2%)

Focus Group Procedures and Data Collection

Focus group guides were developed by the research team based on qualitative research guides and the literature (Liamputtong, 2013). The guides were piloted with a Consumer and Stakeholder Reference Group (CSRG), which included a parent and an educator of a primary school student with ASD. Involving consumers in the research process ensured the questions were relevant, sensitive and met the research need (Consumer and Community Health Research Network, 2017; Mathie et al., 2014). It also allowed researchers to trial the clarity and sequence of questions and develop skills in employing questions in focus groups (Liamputtong, 2011, 2013). Feedback from the CSRG was incorporated into the guide. The

same guides and time allocation were used for parents and educators with minor differences in the wording of questions to reflect differences in participant roles (see Table 10).

Table 10

Focus Group Guide

	Description	Minutes
1	Opening remarks and procedure	5
2	Consent and confidentiality	5
3	Participant introductions	10
4	Exploring school participation and connectedness	60

Educator:

- In your opinion, what is school participation?
- What have you noticed are the main challenges students with ASD experience in their participation at school?
- What are the key factors that contribute towards these challenges (i.e., school, classroom and individual level)?
- How do you think this impacts students' sense of connectedness at school?
- What do you think supports students with ASD to participate in the classroom and playground?

Parent:

- How would you define school participation?
- Describe how your child currently participates at school.
- Would you like your child's participation to change? If so, how?
- What have you found to support your child's participation?
- What does it mean for you, for your child to feel connected at school?
- Describe your child's level of school connectedness.
- Would you like their level of school connectedness to change? If so, how?

	<ul style="list-style-type: none"> • What do you think could help to improve your child's sense of school connectedness? 	
5	Closing remarks	10

Focus groups of approximately 90 minutes duration, were held over a period of two weeks in a private room at Curtin University. The focus groups were moderated by the primary author of the study who had more than 5 years' clinical experience working with parents, educators and students with ASD and had specialised training in conflict resolution and group work. The second author co-facilitated one focus group, which allowed researchers to reflect on the group and assess the efficacy of questions routes, as well as dynamics for eliciting information (Liamputtong, 2011). Participants were aware that there were multiple focus groups taking place and they were asked to not share specific details about schools or names of students or staff members to maintain confidentiality.

After initial introductions and allowing the group time to become acquainted, the moderator posed questions and allowed time for participants to respond to each other's comments; facilitating further discussion and clarifying points using probing questions and reflective statements (Liamputtong, 2011). The moderator adopted a flexible approach to allow views to be expressed and to explore issues that may not have been anticipated by the researchers (Liamputtong, 2011). Focus groups were audio-recorded and field notes were taken. Audio-recordings were transcribed verbatim by a professional transcriber and checked for accuracy by the primary author. NVivo, a qualitative software package, was used to manage and organise data electronically.

Data Analysis

Focus group data were analysed thematically using Braun and Clarke's (2006) framework for thematic analysis. This framework is not linked to a specific theoretical approach, which allowed flexibility in the analysis of parent and educator transcripts;

providing a rich and detailed, yet complex account of data (Braun & Clarke, 2006). Individual parent and educator transcripts were analysed before moving onto analysing transcripts across groups (Braun & Clarke, 2006). The primary and secondary author read through hardcopies of transcripts multiple times to familiarise themselves with the data, before making marginal annotations that consisted of paraphrased data and preliminary interpretations. This step was repeated; further annotations were made and themes based on annotations were developed within groups. Preliminary themes derived from parent and educator focus groups were sent to participants for member checking. Following the separate analysis of parent and then educator focus groups, themes common across parent and educator focus groups were produced, prioritised, refined, collapsed and redefined until they reflected the depth and breadth of parents' and educators' experiences. The process of data analysis was iterative and focused on making comparisons between parent and educator perspectives (Braun & Clarke, 2006). Saturation is the gold standard by which sample sizes in qualitative research are determined (Guest, Namey, & McKenna, 2016). Saturation was achieved in this study as major themes in each transcript were similar and subsequent information did not present emerging themes (Starks & Brown Trinidad, 2007).

Credibility was enhanced through researcher triangulation, peer debriefing and member checking to test findings and interpretations with participants (Bryman, 2016). Transferability was met through the provision of detailed descriptions of participants and of results (Nowell, Norris, White, & Moules, 2017; Padgett, 2008). Dependability was achieved through use of an audit trail, field notes and reflexive journal throughout the research process (Lysak, Luborsky, & Dillaway, 2006) and confirmability through a description of the specific approach used to analyse, organise, describe and report on themes within the data set (Bryman, 2016; Curtin & Fossey, 2007; Fossey, Harvey, McDermott, & Davidson, 2002;

Liamputtong, 2013; Nowell et al., 2017). Pseudonyms were used to maintain confidentiality of participants in results.

Results

Four core themes were derived from the data and summarised in Table 11. Themes are reported collectively for both participant groups given the shared themes that resulted from separate analyses. However, where differences were noted between participant groups, these are reported in the results. See Figure 8 and 9 for examples of how parent and educator themes converged to develop themes, ‘meeting in the middle’ and ‘more than just being there’, using thematic networks (Attride-Stirling, 2001). These findings provide unique insights into parent and educators understanding of student school participation and factors that support or hinder participation of students with ASD in the early school years.

Table 11

Overview of Qualitative Findings

Theme	Description
1	<p>More than just being there</p> <p>Being expected to participate</p> <p>Being provided with multiple and varied opportunities to participate</p> <p>Being supported to participate</p> <p>Characteristics of ASD impacting student school participation</p>
2	Meeting in the middle
3	Consistency of supports
4	Embrace difference

Figure 8

‘Meeting in the Middle’ Thematic Network Illustrating Convergence Between Parent and Educator Themes Derived from Textual Data. TD Refers to Typically Developing; P Refers to Parents and E, Educators.

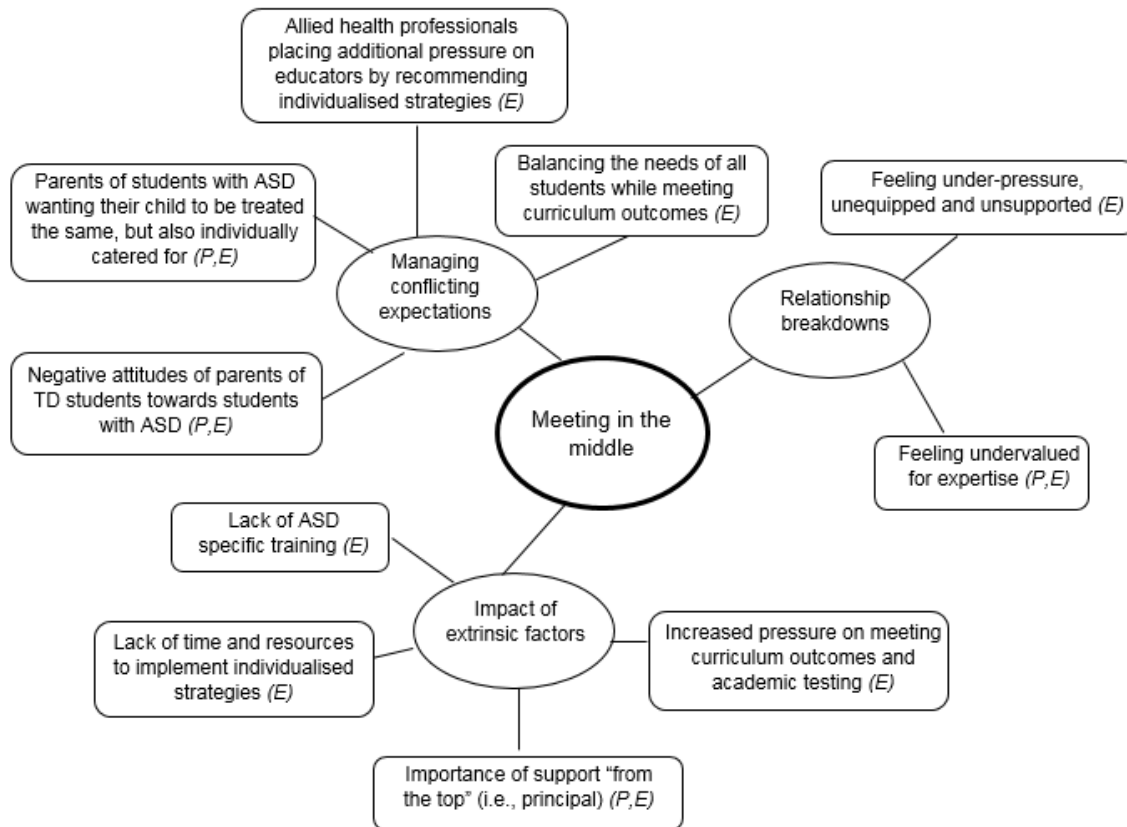
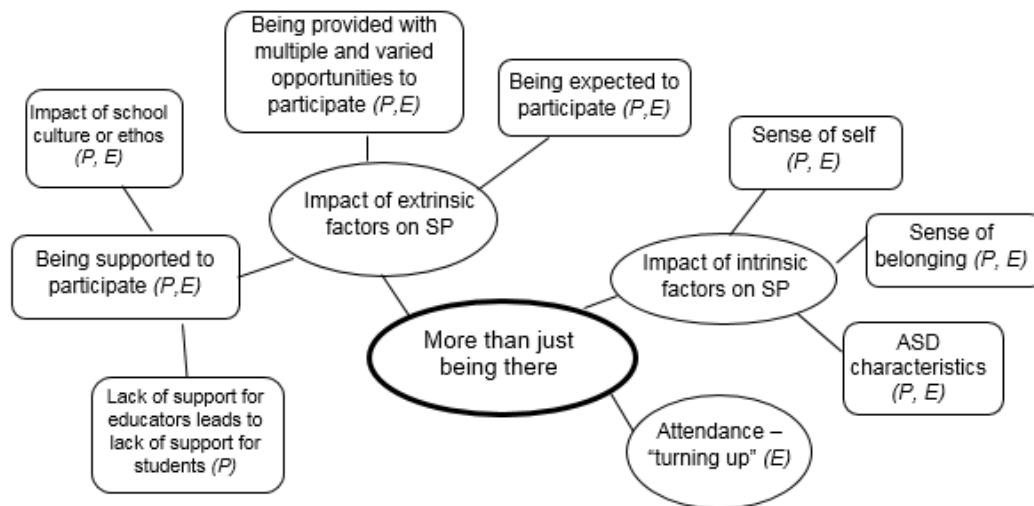


Figure 9

‘More Than Just Being There’ Thematic Network Illustrating Convergence Between Parent and Educator Themes Derived From Textual Data. P refers to Parents; E, Educators and SP, School Participation.



More Than Just Being There

Both parents and educators found the concept of school participation difficult to define, however, more than half of participants described school participation as “more than just being there”. “I think school participation is your child feeling a part of the school. You know, that they feel a sense of belonging I guess. At least, that’s what I hope for anyway” (Jessica, parent).

Educators tended to focus more on observable or behavioural aspects of school participation such as “turning up”, following classroom routines and following teacher instructions. Whereas parents tended to focus more on the affective or psychological aspects of school participation, such as feelings of being included. Both parents and educators

emphasised the profound influence students' sense of self including their confidence, motivation and self-esteem had on their school participation.

One of my boys, he's involved and he puts his hand up on the mat, he's engaged and he functions really well in the classroom. Because I think because he's had a degree of success. He feels like he "fits in" and he's successful – he goes to drama, special subjects . . . (Trish, educator).

Parents and educators described multiple environmental factors they felt contributed towards the successful participation of students with ASD in the early school years. These included: being expected to participate; being provided multiple and varied opportunities to participate; and being supported to participate.

Being Expected to Participate. Both parents and educators reported feeling that there was less expectation on students with ASD to participate at school, than typically developing peers. "He has been excluded from so much in the past because they just say, he won't be able to handle that. But they didn't even try – you know?" (Phoebe, parent).

I've found in my experience that a lot of the time its "oh they're not going to go on the excursion because it's too hard" or "leave them out of that assembly because it's too hard". There needs to be an expectation that they will be involved in some capacity – whatever the student can cope with (Isabel, educator).

Parents attributed minimal expectations of students with ASD to school staff not knowing the student with ASD well enough to know what they are capable of and how hard to push. Parents also felt educators minimised demands placed on students with ASD in an attempt to prevent behaviour that may disrupt the class. Parents also acknowledged limited support for educators in individualising the curriculum to support the participation of students with ASD.

Being Provided with Multiple and Varied Opportunities to Participate. Parents and educators spoke of the importance of students having access to multiple and varied participation opportunities that considered the students' unique strengths, interests and learning needs. "A lot of schools get so focused on what they've always done that they provide this sporting activity or say we do 'that' at this school. Rather than finding out what the kids are really into . . ." (Melissa, educator).

My girl is a Lego nut and all we had to do was say "look she will participate with other kids if they are doing what she likes doing as well". So the Lego comes out at lunchtime instead of her being forced to play ball where she has seizures and hits her head because she doesn't see the ball coming. I mean that's not participating. You've got to provide other opportunities. It's not a one size fits all thing (Kate, parent).

Examples of varied ways parents and educators felt students with ASD could be provided with opportunities to participate included: providing access to a range of school organised extra-curricular activities that cater for varied interests; having access to structured activities during break times for students who find free play challenging; and having access to varied options in the way work can be completed in class.

Parents' shared positive experiences where school events had been adapted, enabling students to demonstrate their knowledge and skills in varied ways. Paula (parent) says:

So this year, he went [to the sports carnival] and he wore headphones the whole time and didn't have to do the running races. But he did get involved in the team stuff. It was such a big thing . . . He's much more comfortable with that sort of thing now (Rebecca, parent).

Parents and educators reflected that when given opportunities, students with ASD were more likely to participate and therefore more likely to develop skills and demonstrate their unique abilities.

Being Supported to Participate. Finally, parents and educators emphasised the importance of students having access to appropriate supports to maximise their school participation so that they were ‘not left behind’. “If you set them up for success and have them participating when they’re all good – then they’re going to grow from that. But to try and push them, beyond their capabilities, without support then more people suffer” (Rebecca, educator).

Parents and educators acknowledged, however, that for educators to be able to support the participation of students with ASD, they need to have access to adequate support themselves, which is often determined by the culture or ethos of the school. Parents and educators agreed that ‘without support from the top’, it is often very difficult to implement strategies and support the participation of students with ASD on the ground.

Characteristics of ASD Impacting Student School Participation. As well as environmental factors, parents and educators acknowledged student specific factors such as characteristics of ASD they felt significantly impact students’ capacity to participate at school. Particularly, students’ ability to: remain calm and in a state for learning in the classroom, build and maintain relationships, adapt and respond to change and transition throughout the school day, manage conflict in play, work in groups and engage in classroom activities and routines. Parents identified fine motor skills as a significant challenge impacting their child’s participation in classroom activities involving handwriting. Overwhelmingly, participants agreed that school participation was a unique experience and highly dependent on the student’s skills and support needs, as well as the characteristics of their learning environment.

Meeting in the Middle

Educators reported facing challenges in meeting the varying and often conflicting expectations of parents of students with ASD, parents of typically developing students and

visiting allied health professionals. More than 80% of parents of students with ASD expressed a desire for their child to be treated the same as their typically developing peers, while at the same time, emphasised the importance of schools individualising supports to cater to the specific needs of their child. Educators recognised this, Barbara (educator) explains:

That's actually what a lot of the parents want – for their child to be treated the same. But they still want their child supported but just sort of under the radar I suppose. So that not everyone else knows that their child is being supported ... They don't want them treated any different. So you've got to support them without it being obvious.

Parents reported they wanted their children to participate in as much as possible at school, but not if their participation caused more harm than good. Belinda (parent) explained:

He really struggles in assemblies and to this day he has not sat through an assembly. He can't handle it, he runs out every time and they keep putting more supports and structures in place, giving him headphones and something to play with in his hands or do and I kind of think it's two assemblies a term – does it really matter if he doesn't go?

Parents and educators agreed that parents of typically developing students often had negative attitudes towards students with ASD and, as a result, expectations that conflicted with those of parents of students with ASD. These attitudes included: that their children may be negatively impacted by the student with ASD, for example, they may copy their behaviour, or they may not get as much support because the teacher's efforts were being directed towards the student with ASD. Educators reported that parents of typically developing students often did not want whole-class strategies implemented if they did not see a direct benefit to their child; placing additional pressure on educators to rationalise curriculum adjustments for students with ASD on top of their busy workload.

In addition to parents' expectations, educators reported being faced with additional expectations from visiting allied health professionals who entered the classroom for short periods of time and made specific recommendations for the student with ASD. Educators expressed frustration when they had a limited understanding of the educational environment and how these strategies could be feasibly incorporated into the busy school day. They admitted the strategies were often not implemented due to a lack of time and resources. Parents reported the value of input from external professionals, because they often validated their concerns and reiterated the strategies they had been advocating.

With multiple stakeholders with varying and often conflicting expectations, schools, and particularly classroom teachers were left stuck in the middle. Educators described feeling torn – dividing their time between students with ASD and the rest of the students in their class as well as meeting necessary curriculum and reporting requirements. Educators also reported feeling at times unequipped to manage the complex needs of students with ASD; attributing this to a lack of time and resources to adequately prepare and a lack of knowledge and skills to support the student with ASD. Elise (educator) explained – “over the five years [I’ve been teaching], I’ve had five or more children [with ASD] in my class – but I’ve never really had any specific training at all. It’s just kind of here you go and good luck.” While parents acknowledged the challenges that educators faced, they also acknowledged the schools’ responsibility in ensuring teachers had adequate knowledge, skills and supports to make adjustments to support their child with ASD.

Consistency of Supports

Parents and educators reported the use of several strategies to support the school participation of primary school students with ASD including but not limited to: incorporating the students interests and strengths into classroom activities and routines wherever possible; using visual supports such as schedules and social stories; explicitly teaching skills such as

emotional regulation and social skills and providing access to regular breaks that meet sensory needs. Both parents and educators acknowledged the benefits of structure, predictability and routine in promoting the participation of students with ASD. Educators acknowledged, however, the challenges in providing structure and predictability in what was often an unpredictable and chaotic environment, where last minute changes to daily routines were unavoidable and sometimes difficult to manage. Educators acknowledged that many of the strategies utilised for students with ASD were also beneficial for other students in the class and described situations where strategies had been utilised as a whole-class with positive outcomes for peers. For example, presenting the daily routine using a visual schedule at the beginning of the day and having it visible at the front of the class for all students. Educators acknowledged that there were often multiple students with additional learning needs in the classroom and through use of whole-class approaches they could not only address the needs of multiple students, but also minimise burden for themselves.

While parents and educators identified many strategies effective in promoting the participation of students with ASD, they also spoke of the arduous process and often cyclical nature of establishing, implementing and maintaining supports for students with ASD. Sue highlighted parents' frustration over the lack of consistency of supports:

One of the key things that happens yearly is that at the beginning of the year they start with the education supports ... schedules, pictures on the desk and then they are achieving so well due to this structure. Somewhere during the middle of the year, they get taken away. Then week by week, slowly things start happening. It happens every year, things go missing and then by the end of the year we're bringing it all back again (Sue, parent).

Sally (parent) explained:

It's about reminding the teacher that I've got a calendar and I write my appointments on there, but I don't necessarily need to look at that to know that I've got a doctor's appointment next week. But I wouldn't throw the calendar off the wall ... Because sometimes just seeing the calendar, not necessarily reading it helps me to remember. I feel that it's the same with all of the schedules and visuals on their desk.

Embrace Difference

The final theme illustrates the impact failure to accept difference can have, not only on the school participation of primary school students with ASD, but on participation of all students with diverse learning needs (e.g., students with Attention Deficit Hyperactivity Disorder (ADHD) or dyslexia). Parents and educators described stigma often associated with a diagnosis of ASD – a preconceived idea that students with ASD were likely to behave or learn in particular ways – without considering the varied and unique ways in which characteristics of ASD influenced students' participation.

The perceived lack of understanding and awareness of ASD was portrayed by Ebony (parent) who said, “An education assistant once said to me – I didn't think he has autism because he has manners.” While parents and educators acknowledged that students with ASD often had unique learning needs compared to typically developing students and students with other disabilities, parents and educators also acknowledged that all students had unique strengths and differences that should be recognised and embraced. Parents and educators agreed that the aim should not be to “fix the student” or “try and make them like everyone else”. Louise (parent) stated: “It's that empowerment to understand that you are perfect and you are fine. You do things differently but that doesn't mean that you are wrong”.

There was a perception among parents and educators that schools often expected students to fit a particular mould, rather than recognising individual student differences and considering innovative ways in which tasks and/or the environment could be adapted to

maximise the participation of all students. Educators, in particular, described how peers were often aware of student differences and still tended to label students negatively, if they were not supported to do otherwise. Parents and educators suggested that by being open and transparent about differences; supporting students to recognise their own differences and take on the perspective of others, students may be more accepting of difference and more able to proactively support students in the classroom and playground.

Discussion

This study offers unique insights into the experiences and participation restrictions of primary school students with ASD in mainstream schools from the shared perspective of parents and educators and provides greater understanding about factors that support and hinder school participation in this population of students. Highlighted student factors impacting school participation included students' sense of self, sense of school belonging and individual characteristics of the student with ASD. Attitudes of educators, parents of typically developing students and peers towards students with ASD; educators' level of knowledge and skills; school culture; and the availability of resources were identified as environmental factors impacting the school participation of primary students with ASD. This study reinforces and extends findings from Frederickson and colleagues (2007), to students with ASD; highlighting that students' sense of belonging is integral to their school participation and the importance of school-based interventions in the early years to prevent intolerance to difference and maximise school participation.

Parent and educator perspectives of the definition of school participation was consistent with the literature; defining school participation as not only being there, but the students subjective experience while participating (Falkmer et al., 2012; Imms et al., 2016). Participants agreed that merely being present in the classroom was not enough – students needed to feel confident and satisfied, as well as a sense of belonging to their school. Yet

again, the importance of social and affective outcomes of inclusion are highlighted; however, as Frederickson et al. (2007) emphasises, the assessment of these outcomes is lagging behind academic performance and as a result students are not adequately supported in these areas. Without early positive participation experiences, primary school students with ASD are at risk of increased absenteeism, reduced self-esteem and academic performance in adolescence (Barnard et al., 2000; Batten et al., 2006; Osler & Osler, 2002). Meaningful school participation should, therefore, be an essential intervention goal (Imms et al., 2016) enabling us to focus on what really matters at school, such as if a student is able to engage with their peers and feel a sense of belonging, rather than how they scored in a test or if they were merely present in the classroom. Efforts focused on promoting students' sense of self and belonging and a positive school culture via whole-class and school intervention programs are crucial in early primary school to prevent a cycle of restricted participation, particularly for students with ASD and SEN included in mainstream classrooms (Frederickson et al., 2007).

The complex nature of managing the varying, and often, conflicting expectations of stakeholders in the primary school context is a key finding of this study. Educators were confronted with the impossible task of meeting parents' unrealistic expectations to make adjustments to support the participation of students with ASD. Parents were overly critical of educators, and educators, defensive. The importance of collaborative parent and educator relationships is well documented (Hoover-Dempsey, Walker, Jones, & Reed, 2002; Schultz, Sreckovic, Able, & White, 2016). What is not so clear, are the factors that contribute to relationship breakdowns and how to address these from the perspective of parents and educators. Without support, relationship breakdowns have the potential to impact future interactions and therefore parent and educators' capacity to support student school participation in a proactive and collaborative way. Based on the findings of this study, building an understanding of each other's expertise, capabilities and limitations may help to

build the foundations for a positive relationship. Future research should engage parents and educators in participatory action research to identify feasible and appropriate strategies to promote positive, and repair strained relationships, so that efforts to support student school participation are not futile (Consumer and Community Health Research Network, 2017; Wallerstein & Duran, 2010).

Failure to accept difference was identified as not only impacting the participation of primary school students with ASD, but that of all students. There was an overwhelming sense that students needed to fit the classroom or the school, rather than thinking about innovative ways students' potential could be harnessed and their school participation maximised. Lack of understanding and negative attitudes towards learning differences is common in other populations of students including students with ADHD, according to Moldavsky and Sayal (2013). It is concerning, however, how early parents and educators in this study reported resistance to difference, given that this is the period of time students perceptions and tolerance towards difference are most amenable to change (Vaz, Falkmer, et al., 2015). Regardless of students' skills, students placed in an environment that stifles creativity and rejects diversity cannot reach their full potential. With more students with diverse learning needs in mainstream settings than ever before, there is no better time to promote understanding and awareness of neuro-diversity, normalise the use of supports for learning, and adapt the way classrooms and schools support the participation of students with diverse learning needs.

Implications for Practice

The inter-relationship between student and environmental factors impacting school participation are complex and multifaceted. While student factors were identified by parents and educators to impact the school participation of students with ASD, environmental factors significantly impacted on students' capacity to participate and feel like they belonged at school. Students spend more time at school than any other setting in their formative years,

therefore the school environment and the availability of supports, has the potential to significantly impact student participation trajectories. Despite the importance of the interaction between the student, their environment and participation outcomes being emphasised in the literature, the limited interventions currently available for primary school students with ASD continue to be directed at the student with an expectation there will be flow-on effects to their participation (Hammel et al., 2008; Imms et al., 2016). Findings from this study emphasise the need to develop and implement holistic school-based interventions in the early primary school years that not only target student skills but address the range of environmental barriers impacting student school participation. Without peer preparation and peer group inclusion, inclusion cannot be achieved for students with ASD and other SEN (Frederickson et al., 2007). Provision of professional learning and support to educators to increase their understanding of ASD and effective classroom management strategies may help to create a positive learning environment and provide students with increased participation opportunities that cater to their needs (Black, 1995; Centers for Disease Control and Prevention, 2009). Supporting the development of positive relationships between parents and educators is also important to ensure stakeholders can adopt a united and proactive approach to support participation from the commencement of students schooling (John-Akinola & Gabhainn, 2013; Parsons, Lewis, & Ellins, 2009). Furthermore, incorporation of peer mediated intervention techniques to promote student interpersonal empathy and use of prosocial behaviours at a whole-class level, may help students to practice skills limiting their participation and feel supported and included by peers (Bene, Banda, & Brown, 2014; Watkins et al., 2015; Whalon, Conroy, Martinez, & Werch, 2015). It is imperative efforts are made to intervene early through incorporation of evidence-based, school-based interventions to break the cycle of restricted participation for primary school students with ASD and minimise the long term implications of reduced school participation on student outcomes.

Limitations and Future Research

The findings need to be interpreted in light of the limitations of the study. This study had a sample that was limited geographically to the Perth metropolitan area. As education is managed at a state government level, there may be differences in the experiences and perceptions of parents and educators across nationally and internationally. The aim of this study was not to generalise to a broader population but to increase understanding of perspectives of a particular group of people, as with most qualitative research (Brantlinger et al. 2005). Furthermore, participation in focus groups was voluntary and therefore participants who agreed to participate may have chosen to do so because they wanted to share particularly positive or negative experiences, which may have limited the diversity of opinions or ideas expressed. Some participants may have been hesitant to share their thoughts if they felt they did not align with the thoughts of other participants in the group. The use of an individual questionnaire prior to focus groups may have helped to seek out views that were divergent from the collective opinion and assist the moderator in facilitating group discussion.

Future research should address the shared concerns of parents and educators using participatory action research to develop school-based interventions to improve the school participation of students with ASD (Wallerstein & Duran, 2010). For example, using the Delphi technique to identify feasible and appropriate school-based intervention techniques or consulting with key stakeholders throughout the research process using a consumer reference group (Consumer and Community Health Research Network, 2017). The perspectives of primary students with ASD should also be explored, to better understand their school participation experiences and identify ways students feel participation restrictions should be addressed in the school environment. By actively working together to analyse challenges and generate actions, we have the potential to minimise the long term documented implications of reduced school participation on student outcomes.

Conclusion

This study explored the experiences and challenges impacting the school participation of primary school students with ASD from the shared perspective of parents and educators. Findings from this study highlight that students aged between 6 and 11 years' experience participation restrictions due to a range of intrinsic and extrinsic factors. It is imperative school-based interventions are developed and implemented in the early primary school years that not only target students' skills, but the range of environmental barriers impacting student school participation.

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Conflict of Interest

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Chapter 4: Expert Consensus to Inform the Content, Delivery and Feasibility of the School-Based Intervention

Chapter 4 outlines findings from a nationally recruited 2-round Delphi study that aimed to obtain expert consensus on the application of the family of Participation and Related Constructs (fPRC) to primary school students on the autism spectrum, and gain recommendations regarding the content, delivery, and feasibility of the intervention. Findings from the Delphi study helped to further verify relationships illustrated in the Model of School Participation and Autism (MSPA) described in Chapter 1, provided evidence to support the relevance of the intervention, and assisted in developing and refining intervention components (see Figure 10).

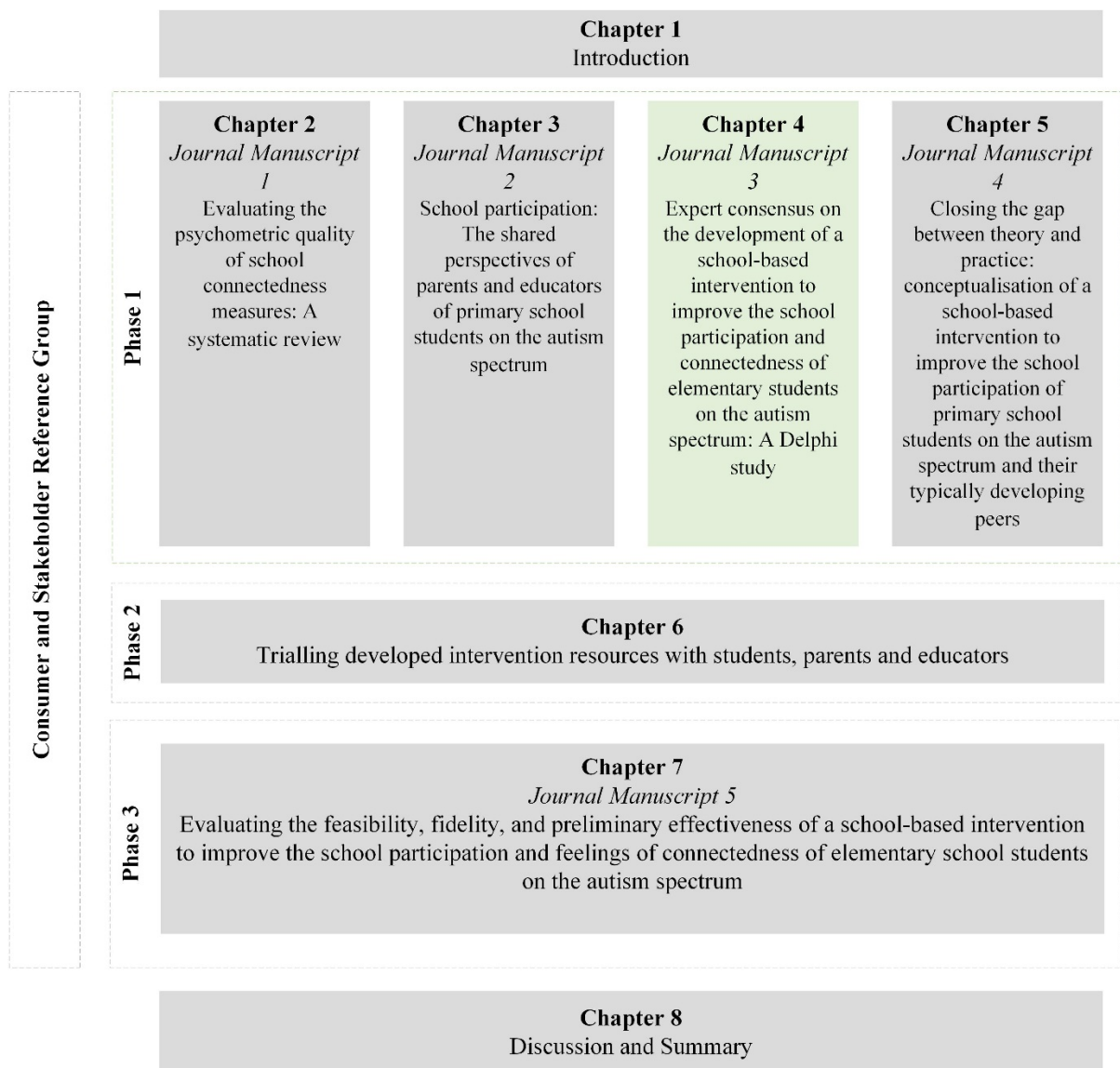
Refer to Appendix A for written permission from Professor Christine Imms and MacKeith Press to re-print the fPRC, and Appendix D for participant information sheets and consent forms, and online questionnaires for each Delphi round. The manuscript was published in *Focus on Autism and Other Developmental Disabilities* on the 9th July 2021:

Hodges, A., Cordier, R., Joosten, A., & Bourke-Taylor, H. (2021). Expert consensus on the development of a school-based intervention to improve the school participation and connectedness of elementary students on the autism spectrum: A Delphi study. *Focus on Autism and Other Developmental Disabilities*, 1-11.

The journal article has been presented as a Microsoft Word document and formatted according to American Psychological Association 7th edition (2019) guidelines, consistent with traditional Chapters in the thesis. All references for this Chapter have been listed at the end of the journal article.

Figure 10

Outline of Thesis, with Chapter 4 Highlighted



Expert consensus on the development of a school-based intervention to improve the school participation and connectedness of elementary students on the autism spectrum: A Delphi study.

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Abstract

School participation and connectedness has significant implications on student outcomes while at school and in later life. The need to develop evidence-based interventions to proactively support students with Autism Spectrum Disorder (ASD) is imperative. A two-round Delphi technique was used to gain expert consensus to inform the development of a school-based intervention to improve the school participation and connectedness of elementary students with ASD. Seventy-six expert clinicians, educators and researchers completed round one and 65 completed a second round. Consensus was achieved on the application of a conceptual framework of participation in round one, which informed the theoretical rationale of the intervention. Consensus on the importance of proposed classroom modules and the feasibility of proposed intervention techniques was achieved in round two. The process of gaining expert perspectives to develop an evidence-based intervention provides greater confidence that the intervention will be effective in achieving meaningful outcomes for students with ASD.

Key Words: Autism Spectrum Disorder; elementary; intervention; inclusion.

Introduction

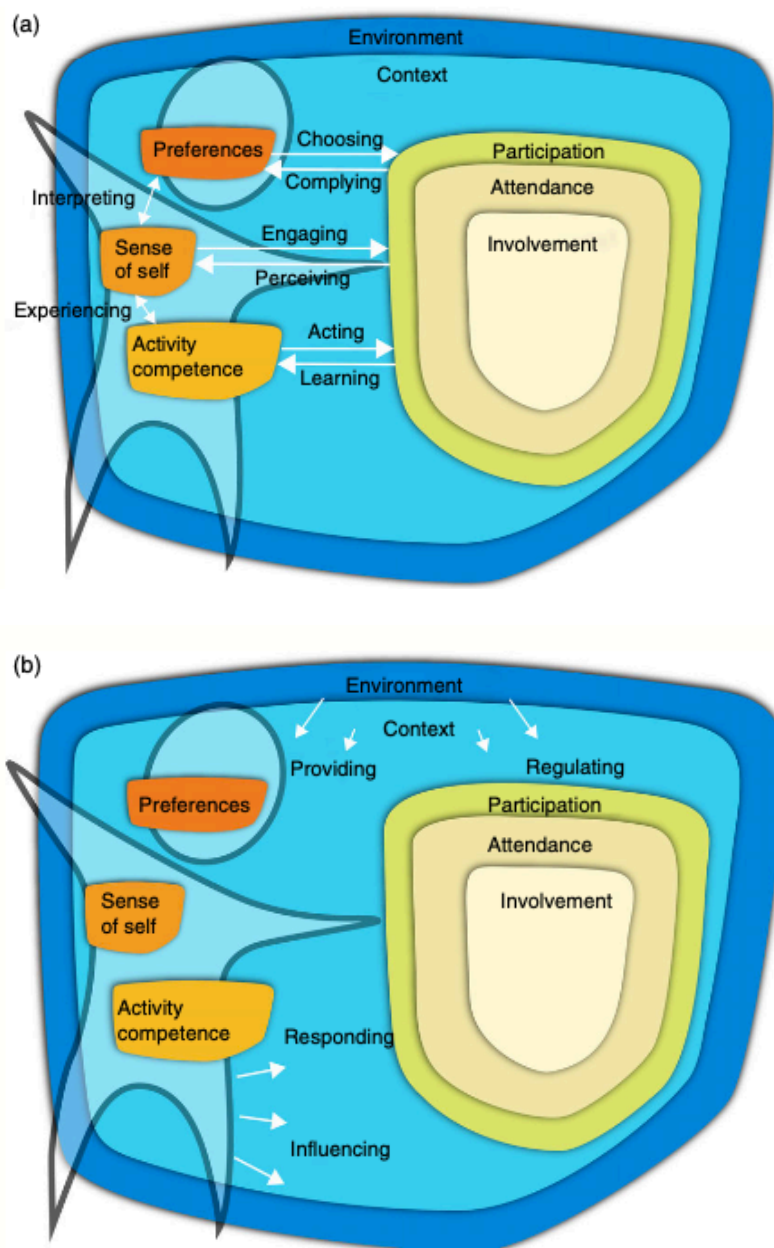
Being engaged in school related activities helps students to develop important skills, knowledge and values and lays the foundation for future learning and participation (Commonwealth of Australia, 2009). The experiences students have at school have significant implications, not only on students' social, emotional and academic outcomes, but also their outcomes in later life (Newman et al., 2011). Forces that shape and drive student school participation, however, are complex and multifaceted.

The family of Participation and Related Constructs (fPRC; see Figure 11) is a conceptual framework that can be used to explore person and environmental factors impacting participation (Imms et al., 2015; Imms et al., 2016). The fPRC was used in this study to guide expert discussions on the application of participation constructs to the school participation of students with ASD, and if deemed important, how these constructs can be targeted in a school-based intervention. Given conceptual inconsistencies related to participation as an outcome, it is important to draw on existing frameworks to ensure consistency in the use of terminology. This was important in this study as experts were sought from a variety of professional backgrounds.

According to the fPRC, participation consists of two components: attendance, defined as being there and involvement, defined as "...the experience of participating while attending" (Imms et al., 2016, p. 18). Intrinsic factors that influence and are influenced by participation include "...activity competence (i.e., the ability to execute an activity), sense of self (i.e., intrapersonal factors related to confidence, satisfaction, self-esteem and self-determination) and preferences (i.e., interests or activities that are valued)" (Imms et al., 2016, p. 18). Active processes between person and environmental factors and participation are illustrated using bi- and uni-directional arrows (Imms et al., 2016).

Figure 11

family of Participation-Related Constructs: (a) Person-Focused Processes, (b) Environment Focused Processes. Reprinted from “Participation, Both a Means and an End: a Conceptual Analysis of Processes and Outcomes in Childhood Disability” by C. Imms and Colleagues, 2016, Developmental Medicine & Child Neurology, 59, 16-25. Copyright [2016] by Mac Keith Press. Reprinted with Permission.



In the context of school, merely being present in a mainstream classroom does not lead to student participation. Students need to engage in classroom and playground activities, feel motivated and connected to their peers, teachers and school community. They also need to have necessary skills and abilities to participate; a positive sense of self and activities or interests at school that hold meaning to them (Imms et al., 2016). Clinicians, educators and intervention researchers are key stakeholders in the school environment that can support or hinder student participation. The dynamic interplay between person (i.e., student) and environmental (i.e., school) processes can be disrupted by factors such as the presence of a disability or lack of resources in the school environment; leading to participation restrictions.

The participation restrictions of students with ASD are widely documented (Saggers et al., 2011). Characteristics of ASD, including difficulty with social emotional reciprocity, impact students' ability to build and maintain relationships with peers and teachers and participate at school (Rotheram-Fuller, Kasari, Chamberlain, & Locke, 2010). These student factors are further compounded by environmental barriers, such as an unsupportive school culture and lack of modification to the curriculum (Batten et al., 2006). Elementary school students with ASD perceive their participation at school to be lower and report they are more bullied, less liked, less involved in interaction, and less understood by teachers at school compared to peers (Falkmer et al., 2012). Reduced school connectedness, defined as "...the extent to which students feel personally accepted, respected, included and supported by others" (Goodenow, 1993, p. 80) in the school social environment, is associated with decreased academic engagement, anxiety and depressive symptomatology (Shochet et al., 2006). While some of the factors impacting the participation of students with ASD are known, the complex interaction between these factors and how they impact student participation and connectedness is yet to be established. Understanding forces that shape

students' school participation, using frameworks such as the fPRC, is imperative so that targeted interventions can be developed, implemented and evaluated in the early school years.

The development of school-based interventions, however, is considered complex due to the presence of several inter-connected components (Craig et al., 2013). The United Medical Research Council (UKMRC) has developed guidelines to provide a systematic, phase-based approach for researchers developing, implementing and evaluating complex interventions (Campbell et al., 2000). These guidelines were used to inform the methodology of a larger research project that aims to develop and evaluate the preliminary effectiveness, feasibility and appropriateness of a school-based intervention to improve the school participation and connectedness of elementary school students with ASD. The UKMRC guidelines emphasise the importance of establishing a strong theoretical rationale that demonstrates how and why the intervention is likely to work and the importance of involving legitimate stakeholders in intervention development (Campbell et al., 2000). This ensures the interests of all relevant people are considered, increased buy-in of stakeholders in ensuing research, and greater likelihood of results influencing practice (Mathie et al., 2014).

This study, reports on the actions that led to the development of the intervention using a Delphi technique; an iterative, multistage group facilitation process, designed to transform individual opinions into group consensus (Boulkedid, Abdoul, Loustau, Sibony, & Alterm, 2011). Four separate focus groups were conducted by the primary author at Curtin University to gain parent (group 1, n=7; group 2, n=8) and educator (group 3, n=6; group 4, n=5) perspectives on the participation experiences of elementary students with ASD and gain preliminary feedback on the content, delivery and feasibility of the school-based intervention. Focus group data were analysed thematically and are reported elsewhere (Hodges, Joosten, Bourke-Taylor, & Cordier, 2020). Findings from these focus groups, the fPRC, and a review of theoretical and empirical literature (Odom et al., 2003; National Autism Center, 2015)

informed the development of the first survey and avenues for questioning in both Delphi rounds. The Delphi technique was chosen as it allows many individuals across locations and areas of expertise to be included anonymously and ensures the contribution of each participant is equally recognized, regardless of background or years of experience (Boulkedid et al., 2011). The aim of the Delphi was to gain consensus from experts in the field of autism, education and intervention development on the: (a) application of the fPRC to students with ASD in mainstream elementary schools; and (b) the content, delivery and feasibility of the school-based intervention.

Methods

Participants and Recruitment

Experts were required to have at least 5 years (full time equivalent) experience in the last 10 years engaging with school-aged students with ASD or activities related to school-aged students with ASD. For this study, school-aged students with ASD referred to children aged between 4 and 18 years of age with a diagnosis of ASD as classified by the DSM 5 (American Psychiatric Association, 2013) or a diagnosis of Autism, Asperger's or Pervasive Developmental Disorder Not Otherwise Specified (PDD-NOS) as classified using DSM IV criteria (American Psychiatric Association, 2000). Activities related to engaging with school-aged students with ASD may have included the provision of clinical services, research, academic teaching or resource development where approximately 50% or more of the professional activity related to students aged between 4 and 18 years with ASD. Ethics approval for this study was obtained from Curtin University Human Research Ethics Committee (HREC2016-0150). Potential experts were identified from the School of Occupational Therapy, Social Work and Speech Pathology at Curtin University; school-aged disability service providers, members of Speech Pathology Australia, Occupational Therapy Australia, the Royal College of Occupational Therapists, and paediatric special interest

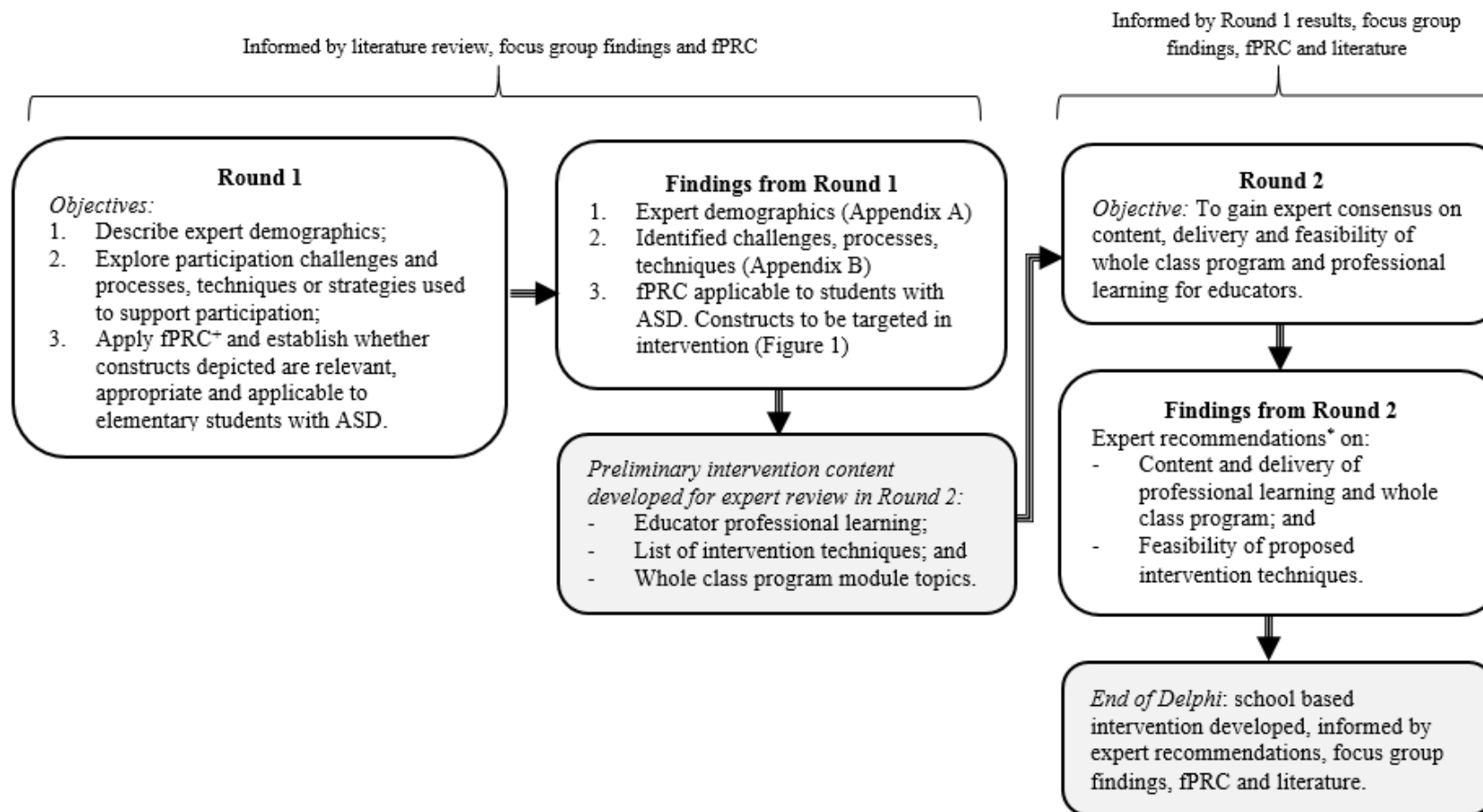
groups; emails to principals of independent public and Catholic Education mainstream elementary schools in the Perth Metropolitan area and convenience sampling through professional networks of the research team. Some recruited experts were also asked to identify other potential experts. Once identified, experts were emailed an invitation to participate in the study with eligibility criteria and an information sheet.

Procedures

The primary author of the study facilitated the Delphi in collaboration with all other authors. All Delphi rounds were piloted with individuals with relevant experience to check the clarity of questions and response burden. Two Delphi rounds were conducted between February and May 2018. Round one involved open-ended and closed questions. Round two involved mostly closed questions. For closed questions, experts were required to rate their level of agreement or importance of items on a 5-point Likert scale. Experts who responded “neutral”, “disagree”, “strongly disagree”, “of little importance” or “not important” to any of the questions were asked to provide their reasoning. Experts received a personalised link to the survey online via email. Experts were provided with study details, the definition of consensus in the first survey and were required to confirm consent prior to accessing the rest of the survey. Each survey was accessible for 3 to 5 weeks and took up to 30 minutes to complete. A reminder email was sent to experts yet to complete surveys one week prior to the due date. Following the first round, experts were sent a personalised link to the second survey round with quantitative and qualitative results. Experts were encouraged to contact the primary author if they had any feedback, queries or concerns. Following round two, experts were sent a summary of results and informed that a third and final round was not required, as consensus had been reached. Experts were also sent a document that outlined how findings would inform the development of the school-based intervention (see Figure 12).

Figure 12

Schematic Illustration of Delphi Process.



Notes: +Experts provided with fPRC reference document (see SI Table 1); *See results section for more details

Data Analysis

Quantitative and qualitative approaches were used to analyse survey responses. Survey responses were anonymized and imported into the Statistical Package for the Social Sciences (SPSS) prior to analysis. Criterion used for establishing consensus was determined prior to the study based on Delphi literature (Diamond et al., 2014). Consensus was reached when at least 70% or more of experts selected “agree” or “strongly agree” or “important” or “very important” on Likert scale questions (i.e., a median score of 1 or 2 on a 5 point Likert scale and an inter-quartile range (IQR) of 1) (Miller, 2006).

Participant responses to open questions were analysed using conventional qualitative content analysis (Graneheim & Lundman, 2004). This process involved identifying meanings in participant comments and coding each comment by assigning a descriptor. For example, “I would like to see effective teacher training... a true understanding of the autistic experience is required to effectively accommodate students on the spectrum” was assigned the descriptor “importance of professional learning to increase understanding of ASD”. Participant comments with similar descriptive codes were grouped. These descriptive codes were considered alongside quantitative data in an Xcel spreadsheet to help develop subsequent survey rounds and identify reasons for lack of consensus. Data analysis was conducted by the primary author who was blinded to the identity of experts to minimise bias and maximise the validity of findings. All results were reviewed by other authors.

Methods to ensure trustworthiness were employed in all stages of the research (Liamputtong, 2017). Credibility was enhanced through member checking to test findings and interpretations with experts. Transferability was met through provision of a detailed description of expert demographics and results. Dependability was achieved through use of an audit trail, field notes and reflexive journal throughout the research process and

confirmability through a description of the specific approach used to analyse, organise, describe and report on themes within the data set (Curtin & Fossey, 2007).

Results

Expert Demographics

A total of 122 experts responded to invitations and were sent a link to the first survey. Of the 122 invitees, 25 (20%) did not respond and 20 (16%) experts stated that, due to time constraints or life circumstances, they were no longer able to participate. Experts who did not complete the first survey were excluded from the second survey. Seventy-six experts completed round one and 65 completed round two (87% response rate). The panel consisted of clinicians, educators, researchers, and school aged service providers that had at least five years' experience working with students with Autism or in the Autism field. The majority of participants were employed in the education sector (33%), by a service provider (36%) or in a university (26%). Sixty-two (62%) percent of participants had more than 10 years working experience (see SI Table 2). There are no strict sample size requirements for Delphi studies; however, literature suggests a panel of 10 to 15 experts can yield sufficient results if the backgrounds of experts is homogenous (Skulmoski, Hartman, & Krahn, 2007).

Round One

Identified Challenges and Effective Supports to Promote the School Participation of Students with ASD. Experts identified a number of student and environmental challenges impacting the school participation of students with ASD in mainstream elementary schools. Examples of student specific challenges included restricted social communication skills, difficulty managing change, transitions and behaviours, which make students vulnerable to bullying. Examples of environment specific challenges included lack of acceptance and understanding of differences, leading to the behaviours of students with ASD being misinterpreted. Due to significant overlap in participant responses to processes, techniques

and strategies to promote the school participation of students with ASD, these responses have been analysed and reported together (see SI Table 3). Identified intervention techniques were analysed alongside focus group findings and empirical literature to form a categorised list of intervention techniques that experts rated for feasibility in round 2.

Application of the fPRC to the Participation of Students with ASD. The majority of experts (87%; median, 2; IQR, 1) agreed that the fPRC could be applied to students with ASD in mainstream elementary schools. Intrinsic student factors were all deemed important for the school participation of students with ASD. Consensus was achieved on the application of all relationships in the fPRC to students with ASD, with at least 91% of experts agreeing or strongly agreeing with these statements. Ninety-one percent (median, 2; IQR, 1) of experts agreed with authors that there is a bi-directional relationship between students with ASD preferences and activity competence (e.g., students with ASD that have an interest in a subject area, may spend more time on that subject and therefore gain more skills), where in the fPRC exists a uni-directional relationship (Imms et al., 2016). All experts (100%; median, 1; IQR, 1) agreed that school connectedness is important for the participation of elementary school students with ASD and should be considered within the fPRC, as an additional intrinsic student factor impacting students' school participation. Only 23% (median, 3; IQR, 0) of experts strongly agreed or agreed with the statement "school connectedness is already addressed in the Australian school curriculum". Experts who agreed with this statement had varying professional roles and reported they felt school connectedness is addressed in the health curriculum and anti-bullying programs. Experts who disagreed with this statement reported that school connectedness is not a priority for schools as an emphasis is placed on students' academic performance and noted a lack of time and resources as barriers to addressing school connectedness (see Table 12).

Table 12*Summary of Quantitative Results from Round One (N = 76)*

Item	Response					Agreement (%)	Mdn	IQR
	SA (1)	A (2)	N (3)	D (4)	SD(5)			
Do you agree that the fPRC can be applied to elementary school students with ASD in mainstream schools?	20	45	8	2	0	87	2	1
School connectedness should be considered as a separate and additional element under involvement.	20	38	13	3	1	77	2	1
School connectedness is already addressed in the Australian school curriculum.	1	16	45	11	2	23	3	0
Student preferences influence and are influenced by school participation.	33	40	1	1	0	97	2	1
Students' sense of self influences and is influenced by school participation.	44	26	3	1	1	93	1	1
Students activity competence influences and is influenced by school participation.	33	39	1	2	0	96	2	1
Students preferences influence and is influenced by sense of self.	44	28	3	0	0	96	1	1
Students' sense of self influences and is influenced by activity competence.	33	37	3	2	0	93	2	1

**Proposed new relationship - Student preferences influence and are influenced by activity competence.	35	33	5	2	0	91	2	1
There is currently a gap in the way these intrinsic student factors are addressed in mainstream elementary schools.	25	29	18	3	0	72	2	2
	VI (1)	I (2)	N (3)	LI(4)	NI (5)	Agreement (%)	Mdn	IQR
How important do you think school connectedness is for the participation of elementary school students?	52	23	0	0	0	100	1	1
How important are [preferences] for the school participation of students with ASD?	57	17	1	0	0	99	1	1
How important is [sense of self] for the school participation of students with ASD?	56	17	2	0	0	97	1	1
How important is [activity competence] for the school participation of students with ASD?	35	27	10	3	0	83%	2	1
How important is [attendance] for the school participation of students with ASD?	37	32	6	0	0	92%	2	1
How important is [involvement] for the school participation of students with ASD?	53	21	1	0	0	99%	1	1

Note. To reach a consensus, 70% of experts needed to rate ‘strongly agree’ or ‘agree’ and ‘very important’ or ‘important’. Percentage agreement: the percentage of experts who selected ‘agree’ and ‘strongly agree’ or ‘important’ and ‘very important’. Response scale: 1 =

Strongly Agree (SA)/ Very Important (VI), 2 = Agree (A)/ Important (I), 3 = Neutral (N), 4 = Disagree (D)/ Of Little Importance (LI), 5 = Strongly Disagree (SD)/ Not Important (NI). Median (Mdn): The value that separates the higher half of responses from the lower half (i.e., the middle value). Inter-quartile range (IQR): The middle 50% of the data (i.e., the difference between 75th and 25th percentiles)

Round Two

Content, Delivery and Feasibility of the School-Based Intervention. Table 13 outlines a summary of quantitative results relating to the feasibility of proposed intervention techniques and the level of importance of proposed weekly classroom module topics. See SI Table 4 for a brief description of proposed weekly classroom module content. All experts (100%; median, 1; IQR, 0) agreed or strongly agreed with the statement “improving the school participation and school connectedness of elementary school students with ASD is important enough to warrant the development of a school-based intervention”.

Whole-Class Program. Experts recommended the whole-class program be delivered in 60 minutes (mean, 72 minutes; range, 0 – 180 minutes) in several short sessions across the school week. Experts emphasised the importance of the intervention being embedded into naturally occurring classroom activities and routines to allow for opportunities for incidental teaching. There was a relatively even spread of responses related to the length of time the classroom program should be delivered across: 31% of experts responded across one term; 22%, across two terms; and 32%, across a school year. Experts reported that ideally the intervention should be delivered over a longer period of time, however, acknowledged this may limit feasibility.

Experts reached consensus with more than 70% of experts agreeing that proposed weekly classroom module topics were “important” or “very important” to be included in the school-based intervention (see Table 13). Experts emphasised the importance of linking content to state and national curriculum to maximise the intervention’s feasibility and suggested the proposed content aligned best with health.

Sixty-six (66%) percent of experts felt the school-based intervention should include an optional classroom module specific to ASD. While some experts felt it would not be helpful to label students’ disability, others provided examples of where talking about ASD helped to

build understanding and support for the student with ASD in the classroom. Experts recommended the professional learning and intervention manual include information for educators and schools on how to manage potential challenges in delivering this content.

Experts reached consensus on the feasibility of all intervention techniques, with at least 77% of experts reporting proposed intervention techniques to be “feasible” or “very feasible” in the school environment (see Table 13). Qualitative comments focused on the practical implementation of techniques. Experts preferred whole-class rather than individual techniques as they felt this would minimise burden and the risk of individual students being singled out. Experts also suggested the implementation of intervention techniques, such as video modelling, would depend on the availability of school resources.

Educator Professional Learning. Experts recommended professional learning be delivered to educators over a total of seven hours (range 0 – 10), in three sessions (range 0 – 10), across five days (median, 3; range, 0 – 14). Experts preferred content to be delivered face to face (69%), in workshop style (91%) and supplemented with written information (46%). Only 39% of experts reported they would prefer professional learning to be delivered online. The majority of experts agreed with proposed professional learning content. Experts suggested content should: a) be individualised to suit the needs of specific schools; b) focus on how the school-based intervention can be practically incorporated into the school day; c) include practical demonstrations of specific intervention techniques; and d) emphasise potential benefits of the intervention to all students (not just students with ASD). Experts stressed the importance of ongoing professional learning and support before, during and after the intervention. Experts suggested support could be available from the researcher via email and onsite at the school at key points during the intervention; utilising a coaching framework where support is gradually reduced over time to increase capacity of schools and individual teachers.

Table 13

Summary of Quantitative Findings from Round Two Relating to the Feasibility of Proposed Intervention Techniques and the Importance of Proposed Weekly Classroom Modules (N = 65)

Feasibility of proposed intervention techniques to implement in school environment	Response					Agreement (%)	Mdn	IQR
	VF (1)	F (2)	N (3)	NF (4)	ANF(5)			
Role play	29	29	6	1	0	90	2	1
Video modelling	32	30	2	1	0	95	2	1
Peer modelling	32	28	4	1	0	92	2	1
Teacher modelling	38	23	2	2	0	94	1	1
Cognitive behavioural therapy techniques	22	28	7	8	0	77	2	1
Task adaptation	44	19	2	0	0	97	1	1
Environmental adaptation	49	15	1	0	0	98	1	1
Incorporation of structure and routine	45	18	2	0	0	97	1	1
Incorporation of student interest and preferences	27	35	3	0	0	96	2	1
Use of play as therapeutic medium	23	30	10	2	0	81	2	1
Parental involvement for generalisation of skills	27	31	6	1	0	90	2	1

Peer mediated intervention, at an individual student level	20	33	9	2	1	82	2	1
Peer mediated intervention, at a whole-class level	19	36	8	2	0	84	2	1
Self-management techniques, at an individual student level	22	28	14	1	0	77	2	1
Self-management techniques, at a whole-class level	27	31	6	1	0	90	2	1
Differential reinforcement, at an individual student level	23	33	4	5	0	86	2	1
Differential reinforcement, at a whole-class level	38	20	5	1	1	90	1	1
Perceived level of importance of proposed weekly classroom module topics.	VI (1)	I (2)	N (3)	LI (4)	NI (5)	Agreement (%)	Mdn	IQR
Who am I and where do I fit in at school?	41	22	2	0	0	97	1	1
We are all unique	44	19	1	1	0	97	1	1
What is ASD?	28	30	5	2	0	89	2	1
Being part of my class	36	25	4	0	0	94	1	1
Thinking about others	49	16	0	0	0	100	1	0.5
Staying calm at school	42	20	3	0	0	96	1	1
Learning through the senses	25	32	6	2	0	88	2	1
Being a good learner	25	34	5	1	0	91	2	1

Making friends	45	18	2	0	0	97	1	1
Having conversations	32	28	5	0	0	92	2	1
Play at break time	44	19	1	1	0	97	1	1
Managing change and transitions	39	23	3	0	0	95	1	1
Managing conflict	48	15	2	0	0	97	1	1
Being part of my school	35	25	2	3	0	93	1	1

Note. To reach a consensus, 70% of experts needed to rate ‘strongly agree’ or ‘agree’ and ‘very important’ or ‘important’. Percentage agreement: the percentage of experts who selected “agree” and “strongly agree” or “important” and “very important”. Response scale: 1 = Very Feasible (VF)/ Very Important (VI), 2 = Feasible (F)/ Important (I), 3 = Neutral (N), 4 = Not Feasible (NF)/ Of Little Importance (LI), 5 = Absolutely Not Feasible (ANF)/ Not Important (NI). Median (Mdn): The value that separates the higher half of responses from the lower half (i.e., the middle value). Inter-quartile range (IQR): The middle 50% of the data (i.e., the difference between 75th and 25th percentiles)

Discussion

Given the numerous challenges with developing and implementing school-based interventions (Kasari & Smith, 2013), involvement of expert stakeholders in intervention development is crucial. This study represents an important step towards bridging the gap between research and practice in the field of school-based intervention research.

The Importance of a Strong Theoretical Rationale in Intervention Research

One of the main outcomes of this study was reaching consensus on the use of the fPRC as a theoretical framework for the intervention. This is an important finding, as despite increased emphasis on the use of evidence-based interventions in schools, there continues to be widespread implementation of interventions that lack a strong theoretical rationale or that have minimal evidence to support their effectiveness (Odom, Collet-Klingenberg, Rogers, & Hatton, 2010). To effect change in the school participation of students with ASD, experts agreed that the intervention must adhere to the following principles: a) target the range and diversity of activities that students attend (i.e., attendance); b) target students' experiences of participation while attending school (i.e., involvement); c) address intrapersonal student factors related to confidence, satisfaction, self-esteem and self-determination (i.e., sense of self); d) address students' skills in areas limiting participation, such as social communication (i.e., activity competence) and interests or activities that hold meaning to the student (i.e., preferences). The process of gaining expert consensus on the theoretical rationale of the intervention helped to provide conceptual clarity and consistent use of terminology for researchers and experts. It was also important in ensuring the intervention targets constructs of interest; that clear research questions are developed, and appropriate outcome measures are selected to test the interventions effectiveness. Most importantly, the application of the fPRC ensures the intervention has a strong theoretical rationale, which will allow researchers to clearly articulate how and why they think the intervention is likely to work.

School Connectedness is an Underemphasised Factor Impacting Student Participation

Despite evidence emphasising the significant impact school connectedness has on student outcomes (Shochet et al., 2006), only 23% of experts reported that school connectedness is currently addressed in the curriculum. Experts attributed this to a focus on academic performance to the exclusion of efforts to support students social, emotional and behavioural functioning; a notion that has been supported in literature (Bonell et al., 2014). These findings highlight the importance of increasing educators' understanding of the impact school connectedness has on students' social and emotional development, but also their academic outcomes (McNeely et al., 2002). By supporting students to feel respected, accepted and included at school, students are more likely to participate and have opportunities to demonstrate their academic abilities (Bonell et al., 2014). These findings highlight an unmet need in elementary schools and the imperative to develop school-based interventions that support educators to promote connectedness in the early school years.

Active Ingredients of the School-Based Intervention Based on Expert Recommendations

Quantitative and qualitative findings from this study clearly demonstrate that interventions adopting whole-class approaches are of value in school settings. Based on expert recommendations, the classroom program, developed as a result of this study, will focus on incorporating peer mediated intervention techniques at a whole-class level to increase students' capacity to recognise and respond when a peer needs help to participate at school. Peer mediated intervention has emerging evidence to support its effectiveness with students with ASD and is well suited to the school environment, as it provides multiple and varied opportunities to practice skills in natural environments (Chang & Locke, 2016).

The provision of high-quality professional learning and ongoing support for educators was another key recommendation from experts. Findings from this study highlight that educators often feel unequipped and unsupported to implement interventions, which limit

their feasibility. Experts' recommended professional learning adopt a practical, hands-on approach by providing educators the opportunity to: a) apply content to specific classrooms or students (e.g., by discussing how lesson plans can be incorporated into the classroom schedule), b) troubleshoot perceived barriers (e.g., the impact student absences or presence of relief teachers could have on educators ability to deliver the intervention), and c) practice intervention techniques such as video modelling (e.g., using role play and feedback with other educators in professional learning sessions). Rather than traditional methods of professional learning that focus on disseminating content-heavy lectures, expert educators in this study value the opportunity to practice, apply their skills and receive ongoing coaching in the school environment to refine their skills. Experts emphasised that the success of an intervention is dependent on involvement and support from administration staff (e.g., principals and learning support coordinators); a notion supported in a study which identified school principals to be important facilitators to intervention implementation (Forman, Olin, Hoagwood, Crowe, & Saka, 2008). These findings emphasise the importance of, not only providing adequate professional learning and support to educators, but also the importance of engaging whole-schools in intervention implementation to maximise their feasibility.

The complex nature of school environments and the large number of factors that can impact on the successful implementation of school-based interventions was highlighted in the findings of this study. For example, experts felt the delivery of an ASD specific module should be considered on a case-by-case basis, due to the unique experiences of students on the autism spectrum and the variable nature of individual classrooms. Experts also felt professional learning should be tailored to suit specific needs of educators and schools by assessing prior level of knowledge and skills, using a self-report questionnaire prior to the training.

While useful recommendations, findings highlight the incongruence between educator preferences and the need for rigorous methodology in intervention research. This presents a challenge for researchers who need to ensure intervention fidelity, which requires consistency in the way the intervention is delivered at school (Jaycox et al., 2006). The complex challenges associated with implementing interventions in schools may explain why most intervention studies are not carried out in schools (Kasari & Smith, 2013). The context in which interventions are implemented and measured is important. Researchers, need to work collaboratively with educators to lessen the gap between research and practice.

In summary, based on expert recommendations, the intervention developed as a result of this study will include: a) a whole-class, peer mediated, curriculum embedded classroom program to be facilitated by the classroom teacher; b) professional learning and ongoing support for educators; and c) active involvement of parents through invitations to participate and weekly information handouts with generalisation activities to support learning. These key components or active ingredients are essential and must be present for the intervention to work. In highly variable settings, such as schools, "...it is not enough to identify an active ingredient without also identifying the ways in which implementation of the ingredient can vary while maintaining its effectiveness" (Kasari & Smith, 2013, p. 4). The intervention will therefore be manualised; highlighting key components that must be present for the intervention to work, as well as acceptable variance. Opportunities for individualisation are particularly important, not only to meet the needs of educators described in this study, but also to meet the unique needs of students with ASD who often experience variability in their ability to participate and feel connected at school. By developing an intervention in consultation with expert stakeholders, implementing and evaluating the intervention in schools from the outset; we have the opportunity to maximise the appropriateness of the intervention, increase educator buy-in and therefore the success of the intervention.

Limitations

While there are benefits to using the Delphi technique, there are known limitations to this methodology (Giannarou & Zervas, 2014; Mullen, 2003). Experts who volunteered to participate may be highly motivated, which may have biased results. While multiple international experts were invited to participate, only four completed both survey rounds. Further research is required to generalise findings in the international context. Finally, authors sought expert opinion on the application of a pre-determined theoretical framework, which may be considered confirmatory bias. Authors felt participant expertise would be best utilised in understanding the complex factors shaping student school participation and gain feedback on the content, delivery and feasibility of the intervention based on their experience. Authors attempted to minimise the impact of these limitations by: ensuring an even spread of experts from a range of professional backgrounds; minimising participant fatigue by limiting the number of rounds and minimising wait times between rounds (Hsu & Sandford, 2007).

Conclusions

Findings from this study suggest to effect change in the participation of students with ASD, school-based interventions need to address students' attendance, involvement, sense of self, activity competence, preferences and sense of school connectedness. A school-based intervention that includes a whole-class program, professional learning and parent involvement will be developed and evaluated to improve the school participation and connectedness of elementary students with ASD; informed by theoretical and empirical literature, the fPRC, focus group and expert panel findings. The process of gaining expert perspectives to develop an evidence-based intervention, with known active ingredients, provides greater confidence that the intervention will be effective in achieving meaningful outcomes for students with ASD.

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Supporting Information

SI Table 1

Reference Document with Definitions of Key Constructs of the fPRC and their Application to Mainstream School and Students with ASD, to Assist Experts in Responding to Questions in Round 1.

SI Table 2

Demographic Characteristics of Experts

SI Table 3

Summary of Identified Challenges, Processes or Techniques and Useful Strategies Identified by Expert in Round 1

SI Table 4

Proposed Weekly Classroom Modules with Description to be Used as a Guide

SI Table 1

Reference Document with Definitions of Key Constructs of the fPRC and their Application to Mainstream School and Students with ASD, to Assist Experts in Responding to Questions in Round One.

Construct	Definitions according to Imms et al. (2016)	Application to mainstream school	Example of application to students with ASD. NB. Information sourced from literature and focus groups and may not apply to all students with ASD
Participation	Attending and being involved in life situations ^a	Attending and being involved in school situations*.	
Attendance	Being there and measured as frequency of attending and/or the range or diversity of activities in which an individual takes part.	Students turning up for school, being present in the classroom, attending school activities and extra-curricular activities.	Higher rates of absenteeism, suspension and exclusion ² ; More likely to be homeschooled ³ ; More frequent changes in schools ⁴ ; and Spend more time outside of the classroom than peers ⁵ .
Involvement	The experience of participation while attending that may include elements of engagement, motivation, persistence, social connection and affect.	The students experience of participation while attending school*.	Perceive participation to be lower ⁶ ; Report feeling more bullied, less liked, less involved in interaction and less understood by teachers ⁶ ; Report greater loneliness ⁷ ; and Experience poorer peer relationships and are more vulnerable to social rejection and bullying than peers ⁸ .

Construct	Definitions according to Imms et al. (2016)	Application to mainstream school	Example of application to students with ASD. NB. Information sourced from literature and focus groups and may not apply to all students with ASD
Preferences	The interests or activities that hold meaning or are valued.	<p>Student interests or activities that hold meaning or are of value to the student*.</p> <p>Preferences are established through interactions with people, past experiences at school and through positive associations with the school environment.</p>	<p>Often have previous negative experiences at school leading to reduced motivation, satisfaction and confidence⁹;</p> <p>Often show a strong preference for routine and predictability which can cause anxiety at school¹⁰;</p> <p>Sometimes prefer visual learning and respond well when information is presented visually; and</p> <p>Behavior and interests can disrupt school participation and lead to peer rejection⁹.</p>
Activity competence	The ability to execute the activity being undertaken according to an expected standard, which includes cognitive, physical and affective skills and abilities. Activity competence can be measured as capacity, capability or performed skill.	The student's ability to execute an activity being undertaken according to an expected standard at school*.	<p>Students with ASD:</p> <p>Spend more time engaged in solitary behaviors, purposeless or no activity¹¹.</p> <p>Report difficulties with handwriting and academic workload¹².</p> <p>Require a high level of support from education assistants¹³.</p> <p>Have difficulties with executive functioning skills¹⁴.</p> <p>Can be hesitant to participate without direction or prompting⁵.</p>

Construct	Definitions according to Imms et al. (2016)	Application to mainstream school	Example of application to students with ASD. NB. Information sourced from literature and focus groups and may not apply to all students with ASD
Sense of self	Intrapersonal factors related to confidence, satisfaction, self-esteem and self-determination.	Intrapersonal factors related to confidence, satisfaction, self-esteem and self-determination when participating in school work and related school activities.	Students with ASD: Report lower levels of self-esteem, mental health difficulties and suicidal feelings and self-harming behavior ⁴ . Often experience a negative perception of differences and have a desire to fit in ⁵ .
Context	Setting for activity participation that includes people, place, activity, objects and time ^b	People, places, activities, objectives and time related to school environment. Factors influencing school participation*.	Busy classrooms, lack of structure during break times and constant transition and change throughout the day can make school a stressful place for students with ASD ⁵ . Reported barriers to school participation for students with ASD include: Lack of in-service ASD specific teacher training ^{15,16} ; poor school culture relating to the inclusion of students with additional needs ^{9, 18} ; lack of peer and teacher awareness and understanding of ASD ^{2, 4, 20-23} and a lack of modification to the curriculum, social and physical environment ⁴ .

Construct	Definitions according to Imms et al. (2016)	Application to mainstream school	Example of application to students with ASD. NB. Information sourced from literature and focus groups and may not apply to all students with ASD
Environment	Broad, objective social and physical structures in which we live.	<p>Students' sit within the context of their family and broader community environment.</p> <p>Family factors influencing school participation*.</p> <p>Community factors influencing school participation*.</p>	<p>Parents of students with ASD: perceive their child to have restricted participation and disrupted educational trajectories⁹. often actively try to influence their child's school participation but feel they have little control⁹. are often forced to relinquish employment to home school their child or be available to support their child at school placing additional financial pressure on the family⁹.</p> <p>There is still a general lack of understanding of ASD in the broader community caused by misinformation, misleading stereotypes and negative stigma associated with ASD.</p>
^a Based on the ICF definition (World Health Organisation, 2007); ^b from Batorowicz et al., (Batorowicz, King, Mishra, & Missiuna, 2016) Note. References are detailed at the end of the Qualtrics survey.			

SI Table 2*Demographic Characteristics of Experts*

	Round 1		Round 2	
Characteristic	Frequency	Percentage (%)	Frequency	Percentage (%)
Location of residence	n=76		n=65	
Australia	72	95	62	95
United States	1	1	1	2
United Kingdom	1	1	1	2
Hong Kong	2	3	1	1
Australian State	n=72		n=62	
Western Australia	54	71	45	73
Victoria	6	8	6	10
Tasmania	1	1	1	2
New South Wales	5	7	4	5
Queensland	6	8	6	10
Sector employed	n=86		N=73	
Service Provider	27	36	23	32
Education Sector	25	33	21	28
Private Practice/ Small Business	6	8	5	7
University	20	26	19	26
Currently a student	4	5	3	4
Government or non-government agency	2	3	0	0
Other	2	3	2	3
Professional role	n=101		n=84	
Teacher	19	25	16	19
Principal	3	4	3	4
Deputy Principal	2	3	2	2
Learning Support Coordinator	5	7	3	4
Education Assistant	5	7	4	5

	Round 1		Round 2	
Characteristic	Frequency	Percentage (%)	Frequency	Percentage (%)
Speech Pathologist	16	21	14	17
Occupational Therapist	26	34	23	27
Psychologist	2	3	1	1
Case Manager	3	4	2	2
Researcher/ Academic	14	18	12	14
School-Aged Service Provider	2	3	1	1
Other	4	5	3	4
Completed qualifications	n=76		n=65	
Certificate	2	3	1	2
Diploma (or equivalent)	2	3	2	3
Bachelor (or equivalent)	37	49	33	51
Masters (or equivalent)	14	18	11	17
PhD (research)	15	20	15	23
Other, please specify	6	8	3	4
Years of working experience	n=76		n=65	
2 – 3 years	1	1	1	1
4 – 5 years	3	4	3	5
6 – 7 years	12	16	10	15
8 – 9 years	13	17	11	17
>10 years	47	62	40	62
Years of experience with students with ASD	n=76		n=65	
5 – 7 years	33	43	31	48
8 – 9 years	8	11	6	9
10 – 11 years	5	7	5	8
12 – 13 years	9	12	7	11
14 – 15 years	4	5	2	3
16 – 17 years	2	3	2	3
18 – 19 years	4	5	1	1

	Round 1		Round 2	
Characteristic	Frequency	Percentage (%)	Frequency	Percentage (%)
>19 years	11	15	11	17
<i>Notes.</i> " Indicates multiple responses were allowed				

SI Table 3

Summary of Identified Challenges, Processes or Techniques and Useful Strategies Identified by Experts in Round 1

Student specific challenges	<p>Social skills.</p> <p>Self-regulation.</p> <p>Transitions and change.</p> <p>Executive functioning.</p> <p>Communication skills.</p> <p>Intrinsic motivation.</p> <p>Behaviour, which makes student vulnerable to bullying.</p>
Environment specific challenges	<p>Highly social, stimulating and at times unpredictable nature of the school environment.</p> <p>Lack of knowledge and skills about ASD.</p> <p>Lack of adaptation to support individual student needs.</p> <p>Lack of flexibility within the curriculum to support individual learning styles.</p> <p>Lack of time and resources.</p> <p>Lack of acceptance and understanding of difference leading to students with ASD being misunderstood.</p> <p>Strained relationships between stakeholders including parents, clinicians and educators.</p> <p>Negative attitudes towards inclusion and students with additional needs.</p>
Processes, techniques and strategies to promote school participation of students with ASD	<p>Professional learning and support for educators.</p> <p>Parent support and education.</p> <p>Individualised planning for students with ASD.</p> <p>Use of formalised social thinking and self-regulation programs.</p> <p>Task and environmental adaptations including use of visual supports.</p> <p>Explicit teaching of skills (e.g., social skills, self-regulation)</p> <p>Peer mediated intervention, peer support and mentoring.</p> <p>Strengths based approach (i.e., incorporating strengths and interests wherever possible).</p> <p>Video-modelling.</p>

Peer and teacher modelling.
Whole class or whole school approaches.
Choice and control.
Opportunities for structured support during break times.
Positive reinforcement.
Break systems and incorporating regular breaks throughout the day.
Communication and collaboration between stakeholders.
Collaborative goal setting with students and parents.
ASD specific information to raise awareness and understanding.
Focus on building student empathy.
Focus on supporting relationships between home and school.
Utilisation of supports including school resources and external agencies.

*Note, due to significant overlap, participant comments related to processes, techniques and strategies to promote school participation of students with ASD have been analysed and reported together.

SI Table 4

Proposed Weekly Classroom Modules with Description to be Used as a Guide

Who am I and where do I fit in at school?

Identify personal strengths, interests, friends and supports at school; self-evaluate feelings towards school, satisfaction and performance in key areas; set goals for school participation.

We are all unique

Recognise that everyone is different; connect with peers with similar strengths and differences; create difference.

What is ASD?

Characteristics of ASD; misunderstanding and myths; strengths and successful people with ASD; potential difficulties at school; how to help.

Being part of my class

Recognise the role and power everyone has to help others to participate; identify qualities of a class citizen; develop a set of classroom expectations to support participation; practice strategies in being assertive when someone is not inclusive

Thinking about others

Learn how to recognise when a peer may need help at school by using their body language, tone of voice, thoughts, feelings and actions.

Staying calm at school

Recognise that everyone responds differently to emotions at school, develop individual self-regulation plans; establish a whole class break communication system; practice self-regulatory techniques.

Learning through the senses

Identify and recognise differences in sensory preferences and learning styles; discuss and implement adaptations to the classroom to support learning.

Being a good learner

Recognise that everyone learns differently; recognise when a peer may need help in class (e.g., to ask for help; to stay on task); learn ways to help everyone learn together.

Making friends

Recognise that everyone likes to be included and to have someone to call a friend; identify

qualities of good friend; practice friendship skills (initiating, joining in, sharing, taking turns).

Having conversations

Recognise key challenges in conversation; practice conversational skills (asking questions, initiating, staying on topic)

Play at break time

Identify common break times issues and solutions; recognise when a peer needs help at break and learn ways of helping; create structured activities or games for break time as a class.

Managing change and transitions

Discuss common changes and transitions at school and associated feelings; prioritise one change/transition that is important to the class; develop strategies to support change/transition.

Managing conflict

Recognise that conflict is a part of everyday life at school; recognise other people's point of view in a conflict; learn ways to manage conflict.

Being part of my school

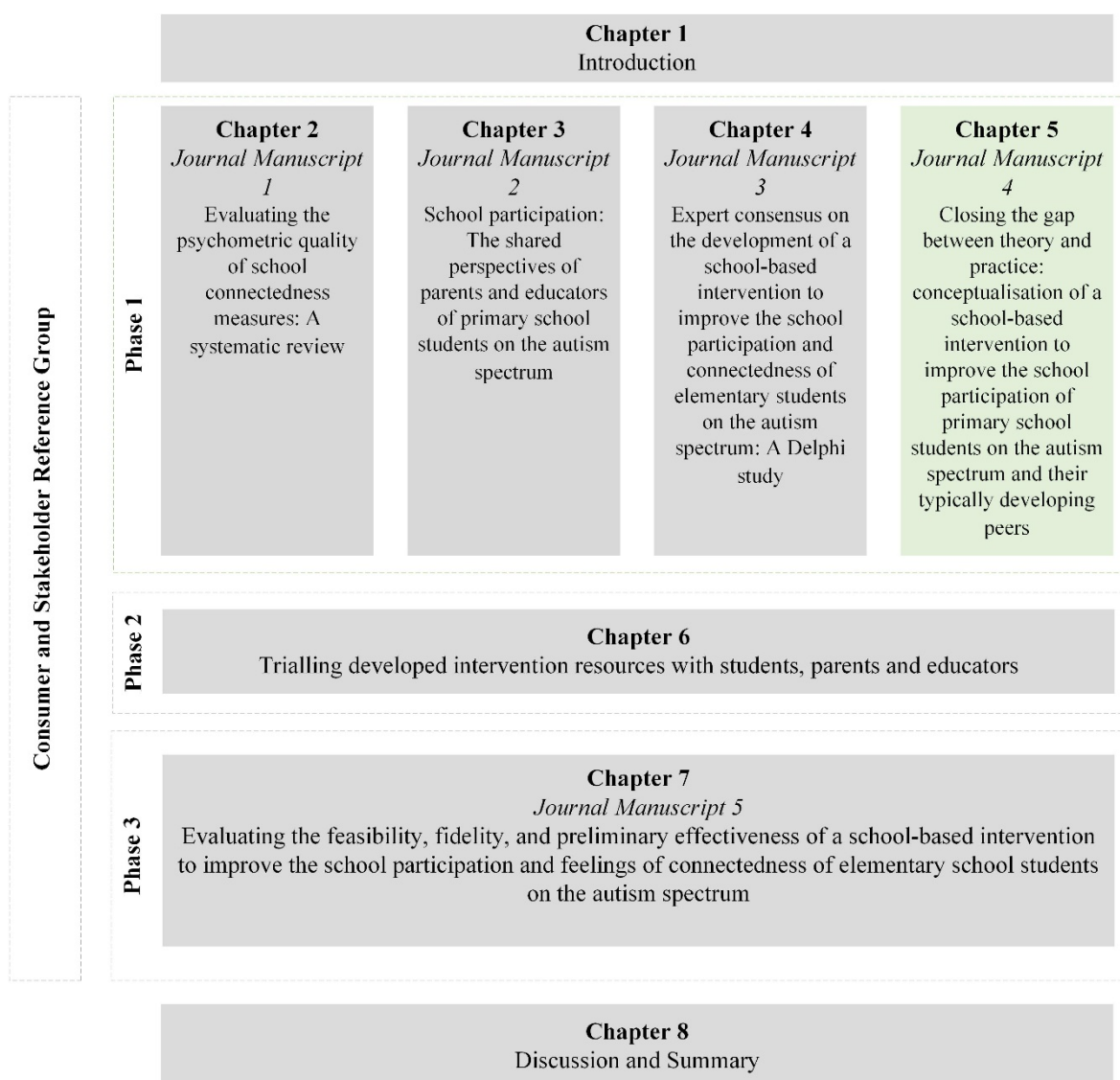
Reflect back to the first module; identify ways to get more involved at school and create new opportunities as a class, revisit vision for the future; celebrate differences within the class and school.

Chapter 5: The Multi-Stage Iterative Process that Led to the Development of the School-Based Intervention

Chapter 5 is a pivotal Chapter in this thesis as it includes a manuscript that describes the proposed Model of School Participation and Autism (MSPA) and the multi-stage iterative process that led to the development of the school-based intervention, which can be used as a guide by researchers, clinicians or educators wishing to develop complex interventions (see Figure 13).

Figure 13

Outline of Thesis, with Chapter 5 Highlighted



The manuscript presented in this Chapter is in press in the Journal of Autism and Developmental Disorders and is currently undergoing typesetting by the publisher. The journal article has been presented as a Microsoft Word document and formatted according to American Psychological Association 7th edition (2019) guidelines, consistent with traditional Chapters in the thesis. All references for this Chapter have been listed at the end of the journal article. The manuscript has been presented in part at the following national and international conferences, and at a paediatric occupational therapy interest group:

Hodges, A., Cordier, R., Joosten, A., Bourke-Taylor, H., & Harris, C. (2019, June). The development of a school-based intervention to improve the school participation and connectedness of students with Autism Spectrum Disorder in mainstream primary schools [Poster presentation]. Occupational Therapy Australia Conference, 2019, Sydney, Australia.

Hodges, A., Cordier, R., Joosten, A., & Bourke-Taylor, H. (2020, December). Bridging the gap between theory and practice: the development of a school-based intervention to improve the school participation and feelings of connectedness of primary school students on the autism spectrum [Paper presentation]. Australasian Society for Autism Research Conference 2020, Autism New Zealand and Victoria University of Wellington, Wellington, New Zealand.

Hodges, A. (2020, June). *In My Shoes – Look, Think, Decide. See school from a different perspective* [Paper presentation]. Developmental Occupational Therapy Western Australia Inc. paediatric interest group 2020, Perth, Australia.

Refer to Appendix E for participant information sheets, consent forms and demographic questionnaires for participants involved in the Consumer and Stakeholder Reference Group (CSRG).

Closing the gap between theory and practice: conceptualisation of a school-based intervention to improve the school participation of primary school students on the autism spectrum and their typically developing peers.

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Abstract

Limited interventions exist that support students' school participation. This paper describes a theoretical model of school participation and the iterative process that led to the development of an intervention that aims to improve the school participation of students on the autism spectrum and their typically developing peers. Literature on autism, school participation and intervention research were integrated to develop a theoretical model. Focus groups, a Delphi study, online surveys, and reference group consultation helped to develop and refine the intervention. A novel school-based intervention was developed. The impetus to develop interventions with a strong theoretical rationale is discussed.

Key words: psychosocial intervention; schools; autism; theoretical model; intervention development.

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Introduction

School participation is essential to students' social, emotional and academic development (Frederickson, Simmonds, Evans, & Soulsby, 2007). In recent years there has been growing concern about the school experiences of students on the autism spectrum. This research indicates that students on the autism spectrum experience significant school participation restrictions and are more likely to experience bullying, less social support and more frequent suspensions compared with typically developing peers (Humphrey & Symes, 2010; Jones & Frederickson, 2010). Persistent challenges participating at school can lead to students feeling like they do not belong at school, which can have a significant long-term impact on student outcomes (Shochet, Dadds, Ham, & Montague, 2006). However, there are limited interventions available that specifically aim to increase student's participation at school (Centers for Disease Control and Prevention, 2009).

The development of interventions that aim to improve students' school participation requires an understanding of the construct of school participation and factors that support or hinder students' experiences. This is critical, as without a clear understanding of the construct, we cannot be sure interventions are targeted appropriately. In this paper, we present a theoretical model that illustrates the interaction between characteristics of autism and factors that promote school participation. We then describe how we used this theoretical model to engage in a multi-stage iterative process to develop a school-based intervention aiming to improve the school participation of primary school students on the autism spectrum and their typically developing peers.

The Research Team

The development of the theoretical model and resulting intervention was led by authors of this paper. The primary author is a registered occupational therapist with clinical experience working with children and young people with a range of disabilities, specialising

in providing community based consultative services to support school aged students on the autism spectrum, their families, and educators. Professor Reinie Cordier's research focuses on promoting the social inclusion of children with various developmental disabilities, such as autism, measurement and psychometrics and developing evidence-based psychosocial interventions. Associate Professor Annette Joosten has extensive clinical and research experience in area of autism, early intervention, and the impact autism has on participation. Associate Professor Helen Bourke-Taylor has research experience in school participation and the involvement of children with atypical learning needs. The expertise of the research team is important to describe as it provides context and validates the theoretical model and intervention as an expert led, research informed initiative.

The Proposed Theoretical Model of School Participation and Autism

The theoretical Model of School Participation and Autism (MSPA) was constructed following a critical appraisal of the literature relating to autism, school participation and intervention research. Authors reviewed all studies included in a systematic literature review of the psychometric properties of school connectedness measures (see review for search terms and studies included; Hodges, Cordier, Joosten, Bourke-Taylor, & Speyer, 2018). Additional searches were conducted using a range of databases such as CINAHL, Embase, ERIC, Medline, PsycINFO, to identify studies exploring the relationship between characteristics of autism and school participation, as well as intervention techniques used and found to be effective in facilitating the school participation of students on the autism spectrum. All studies were independently reviewed by the primary author, and then by the research team, based on a pre-set criteria to determine the strength of the relationship between factors illustrated in the MSPA. Relationships in the MSPA were considered 'strong' if more than 70% of studies reviewed showed a direct relationship between factors in the MSPA (e.g., the social communication skills of students on the autism spectrum improved following a peer mediated

intervention), the purpose of the study was clearly linked to factors in the MSPA, the quality of studies was quasi-experimental or higher, and there were autism specific findings.

Relationships were considered ‘emerging’ if less than 70% of studies reviewed showed a direct relationship, the purpose of the study was not clearly linked to factors in the MSPA, the quality of studies was lower than quasi-experimental or only used qualitative methodology, and findings were not autism specific. Integrating literature on autism, with literature on school participation and intervention research enabled us to construct an evidence-based theoretical model that depicts the interactive process between characteristics of autism and factors that promote school participation.

The MSPA is based on Imms and colleagues (2016) framework of participation, called the family of Participation and Related Constructs (fPRC), which was developed following a systematic literature review of language, definitions and constructs used in participation intervention research with children with disabilities (Imms et al., 2015). The MSPA extends the fPRC by applying the fPRC to students on the autism spectrum in the school environment. According to the fPRC, participation comprises two essential components: “...attendance – defined as ‘being there’ and measured as frequency of attending, and/or the range or diversity of activities; and involvement – the experience of participation while attending” (Imms et al., 2016, p. 18). In the context of education, this means being actively engaged in activities, tasks and routines that are typical for students of that age in a given education system, as well as a subjective feeling of belonging, and being active in the school environment (Libbey, 2004). Merely being present in a mainstream classroom does not lead to participation and is not indicative of successful inclusion (Symes & Humphrey, 2012).

Based on the fPRC, several intrinsic factors can influence and, in turn, are influenced by participation (Imms et al., 2016). Intrinsic student factors impacting school participation include students’ – activity competence (i.e., the ability to execute an activity to an expected

standard; Imms et al., 2016), sense of self (i.e., personal perceptions related to students confidence, satisfaction, self-esteem and self-determination; Imms et al., 2016) and preferences (i.e., interests or activities that hold meaning or are of value; Imms et al., 2016). These factors are considered antecedents to, and consequences of, school participation – they influence future participation and are influenced by past and present participation (Imms et al., 2016). For example, to participate in an activity at school students must have a degree of interest; however, through participation students' interest may increase or they may develop new interests that hold meaning or are of value to them.

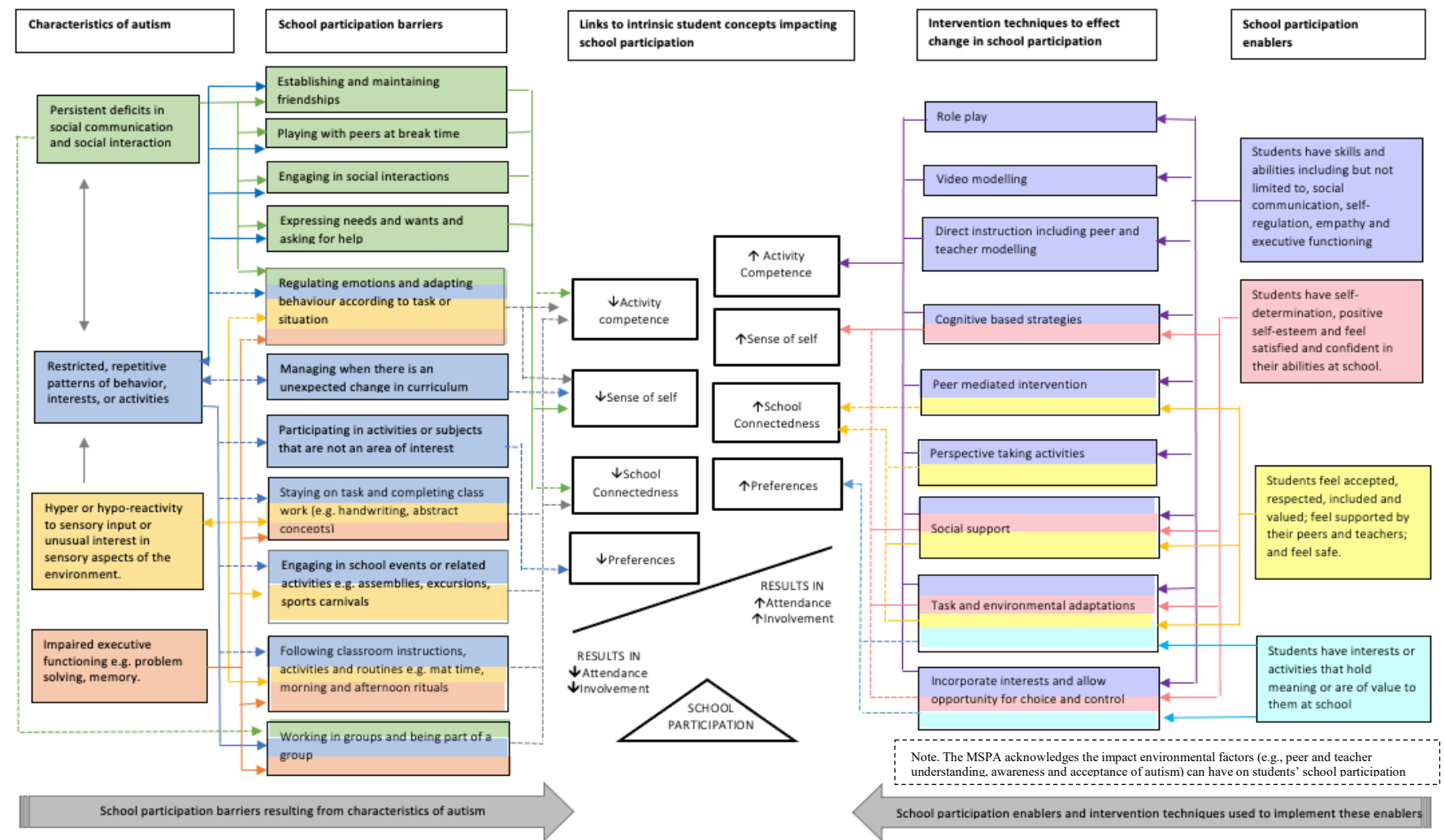
In addition to extending the fPRC to schools, the MSPA includes students' sense of school connectedness as an additional intrinsic student factor, based on a large body of literature emphasising the significant impact reduced school connectedness has on students' school participation and student outcomes (Furlong et al., 2003; Maddox & Prinz, 2003; Shochet et al., 2006). The MSPA also acknowledges that all participation occurs within a contextualised setting and recognises the moderating and mediating impacts students' school, family, and community environments have on students' school participation (Anaby et al., 2014; Colver et al., 2012; Eriksson, 2005). Environmental factors, such as the impact unexpected changes in the curriculum, attendance at school events such as sports carnivals, and the implementation of evidence based intervention techniques has on students school participation, have been explicitly illustrated in the MSPA. Broader social and cultural environmental factors, however, such as peer and teacher understanding, awareness and acceptance of autism, and teachers knowledge, attitudes and skills in supporting students with diverse learning needs, have not been explicitly illustrated in the model due to layout restrictions, but are recognised as factors that can impact student school participation.

Figure 14 outlines the MSPA. The centre of the model represents the school participation transaction and shows that any reduction in intrinsic student factors (i.e., due to

characteristics of autism or environmental factors) needs to be offset by school participation enablers (i.e., intervention techniques). Uni- and bi-directional arrows are used to illustrate relationships between factors and a colour coding system has been used to assist with readability and interpretation. Solid lines between factors indicate that the relationship between factors is strongly supported in the literature, whereas dotted lines indicate the relationship between factors is still emerging in the literature.

Figure 14

The proposed Model of School Participation and Autism (MSPA)



School participation barriers that result from characteristics of autism (illustrated from left to centre in Figure 14), such as difficulty establishing and maintaining friendships, are specifically linked to intrinsic student factors in the centre of the model. For example, literature suggests difficulty regulating emotions impacts students' capacity to learn effectively (Laurent & Rubin, 2004) and impacts the development of social, communication and problem-solving skills (i.e., activity competence; Prizant & Wetherby, 2005). This relationship received a dotted line as relationships identified in the literature were indirect or inferred and not always autism specific.

School participation enablers and intervention techniques used to implement these enablers (illustrated from right to centre in Figure 14), are also linked to intrinsic student factors as depicted in the centre of the model. For example, literature suggests peer mediation is a robust method for teaching and improving academic and social communication skills, as well as improving peer acceptance and reducing social isolation (Bene, Banda, & Brown, 2014; Wang, Cui, & Parrila, 2011). The relationship between peer mediated intervention and activity competence received a solid line as there have been several autism-specific experimental studies conducted outlining strong direct relationships as well as reviews and meta-analyses (Bambara, Cole, Kunsch, Tsai, & Ayad, 2016; Banda, Hart, & Liu-Gitz, 2010; Bene et al., 2014; Rodriguez-Medina, Martin-Anton, Carbonero, & Ovejero, 2016; Strain, Kerr, & Ragland, 1979; Wang et al., 2011). Conversely, the relationship between peer mediated intervention and school connectedness received a dotted line as relationships in the literature were largely inferred and the purpose of studies were not clearly linked to the concept of school connectedness (Kasari, Rotheram-Fuller, Locke, & Gulrud, 2012; Rodriguez-Medina et al., 2016). Inconsistency in the way school connectedness is conceptualised and defined, however, may contribute to lack of strong evidence to support this relationship. To effect change in student school participation, the MSPA proposes school

participation enablers as implemented through intervention techniques need to offset the barriers that result from characteristics of autism. The proposed model is described briefly below in relation to four intrinsic student factors of school participation and autism.

Activity Competence and Autism

The school environment is complex and requires many skills to successfully navigate. Autism can impact the development and performance of several skills, such as social communication, which can significantly impact students' ability to participate at school (Saggers, Hwang, & Mercer, 2011; Saggers et al., 2016). Social communication participation restrictions can include difficulty establishing and maintaining friendships at school, engaging in social interactions, expressing needs and wants and asking for help at school (Hodges, Joosten, Bourke-Taylor, & Cordier, 2020). Literature suggests students on the autism spectrum are less likely to initiate social interactions and spend a larger proportion of time engaging in non-social play at school (Koegel, Vernon, Koegel, Koegel, & Paullin, 2012). Students' school participation can be further impacted by hyper or hypo reactivity to sensory input with noise, touch, and the ability to stay still, identified as sensory preferences, significantly impacting students' learning and performance at school (Saggers et al., 2016). Furthermore, impaired executive functioning skills, such as problem solving and attention, can result in students having difficulty adapting their behaviour, following instructions, and being part of a group (Torrado, Gomez, & Montoro, 2017; Zingerevich & LaVesser, 2009).

Several effective intervention techniques have been identified to improve the social communication, play and problem-solving skills of students on the autism spectrum including peer mediation (e.g., large effect size (ES) = 1.3, 95% CI; Wang et al., 2011); role play (e.g., medium ES = 0.92, 95% CI; McCoy, Holloway, Healy, Rispoli, & Neely, 2016), video modelling (e.g., large ES = 1.22, 95% CI; Wang et al., 2011), and direct instruction (Ganz & Flores, 2009; Klinger, Klinger, & Pohlig, 2007). Peer mediated interventions facilitate active

student engagement by providing students with frequent opportunities to respond, and provide prompts and feedback (Bene et al., 2014; Wang et al., 2011). Results from a meta-analysis found peer mediated instructional arrangements to have a significant impact on students on the autism spectrum in academic content areas (e.g., reading, comprehension), as well as social communication skills and reducing problem behaviours with an average ES of 0.82 of all studies reviewed (95% CI; Bene et al., 2014).

Sense of Self and Autism

While skills are necessary to be able to participate at school, another key factor impacting student school participation is students' sense of self, including students' confidence (i.e., students' perceived competency, skill and capability to deal effectively with various situations; Shrauger & Schohn, 1995), satisfaction (i.e., short term attitude resulting from an evaluation of students educational experience, services and facilities; Weerasinghe, Lalitha, & Fernando, 2017), self-esteem (i.e., overall subjective sense of personal worth or value; Blascovich & Tomaka, 1991) and self-determination (i.e., ability to think and make decisions without external influences; Hui & Tsang, 2012; Imms et al., 2016). Lack of structure and predictability in the school environment, students' awareness of limited social relationships and difficulties connecting with peers, and persistent challenges participating at school can result in students feeling less satisfied and confident at school which can lead to a negative sense of self (Humphrey & Lewis, 2008). As a result of these challenges, students on the autism spectrum are more likely to experience bullying and social isolation (Rowley et al., 2012), leading to increased risk of anxiety and depressive symptomatology (Shochet et al., 2006).

Interventions utilising a strengths-based approach that aim to increase students' self-awareness of differences and provide opportunities for students to make choices, in line with principals of social and emotional learning (Jones & Bouffard, 2012; Pasi, 2001; Romasz,

Kantor, & Elias, 2004), have been found to contribute to an improved sense of self for students on the autism spectrum (Niemic & Ryan, 2009; Reutebuch, Zein, & Roberts, 2015). Cognitive based strategies such as seeking evidence for and against the validity of thoughts, identifying consequences for holding a particular belief, and categorising thought distortions have strong evidence to support their effectiveness in improving self-esteem, reducing anxiety symptoms, self-report school anxiety and social worry for students on the autism spectrum (Chalfant, Rapee, & Carroll, 2007; Lee, Simpson, & Shogren; Luxford, Hadwin, & Kovshoff, 2016; Wood et al., 2009). For example, a study by Wood et al., (2009) reported a significant reduction in anxiety symptoms for students on the autism spectrum following a cognitive behavioural therapy intervention with a large reported ES of 2.46 (Cohen, 1988). Finally, task and environmental modifications such as the use of multi-media to increase student enjoyment (Hiemann, Nelson, Tjus, & Gillberg, 1995) and providing access to a range of activities that cater to students diverse interests, in line with principals of universal design (Center for Applied Special Technology, 1998; Orkwis, 2003; Spooner, Baker, Harris, Ahlgrim-DeLzell, & Browder, 2007), have also been found to increase students sense of self (Eime, Young, Harvey, Charity, & Payne, 2013; Hinchliffe, Saggers, Chalmers, & Hobbs, 2016; Mahoney, Cairns, & Farmer, 2003).

School Connectedness and Autism

The extent to which students feel valued and cared for in their school community, referred to as school connectedness, is considered a predictor as well as an outcome of student school participation (Ciani, Middleton, Summers, & Sheldon, 2010). A study by Wainscot and colleagues (2008) reported 90% of students on the autism spectrum felt they were disliked by someone at school. Studies also report students on the autism spectrum have fewer friends and that their friendships are of poorer quality (Kasari, Locke, Gulsrud, & Rotheram-Fuller, 2011).

Modification to the social and physical environment, such as improving peer and teacher awareness and understanding of autism, has been linked to improved sense of connectedness at school (Batten, Corbett, Rosenblatt, Withers, & Yuille, 2006). Peer mediated interventions focusing on increasing peer acceptance of autism and basic strategies to promote inclusion have also been found to improve the school connectedness of students on the autism spectrum (Harper, Symon, & Frea, 2008; Owen-DeSchryver, Carr, Cale, & Blakely-Smith, 2008). For example, a study by Kasari and colleagues (2011) reported students on the autism spectrum received more friend nominations from their peers and were observed to be less isolated in the playground following the implementation of a peer mediated intervention.

Preferences and Autism

The motivation to participate rests on the premise that there are interests or activities at school that hold meaning or are of value to students (Imms et al., 2016). Students on the autism spectrum often have intense interests and a preference for sameness, which can impact their ability to participate in activities or subjects that are not an area of interest and manage when there is an unexpected change at school (Koegel, Singh, & Koegel, 2010). These challenges often result in students engaging in behaviours that can be disruptive in the school environment, which further impacts students' capacity to participate at school (Saggers et al., 2016). Furthermore, the school environment is often highly structured with limited flexibility in how the curriculum is taught; limiting students' capacity to make choices and feel in control. Incorporating students' interests and allowing choice and control in interventions has been found to improve students' motivation, task completion and socialisation and reduce disruptive behaviour (Koegel, Kim, Koegel, & Schwartzman, 2013; Reutebuch et al., 2015; Ulke-Kurkcuoglu & Kircaali-Iftar, 2010).

Current interventions for students on the autism spectrum tend to focus on targeting students' skills in isolation, with an expectation there will be a flow-on effect on students' participation (social skills; Mackay, Knott, & Dunlop, 2007; McConnell, 2002; Ostmeyer & Scarpa, 2012). The MSPA highlights that to effect change in students' school participation, a holistic approach using evidence-based intervention techniques is required, targeting not only students' skills (i.e., activity competence), but also psychological aspects (i.e., sense of self, school connectedness and preferences) of students' school experiences. We used the MSPA as a theoretical foundation to guide the development of a school-based intervention aiming to improve school participation of primary school students on the autism spectrum and their typically developing peers from conceptualisation to implementation in the school environment.

The Multi-Stage Iterative Process of Developing the School-Based Intervention

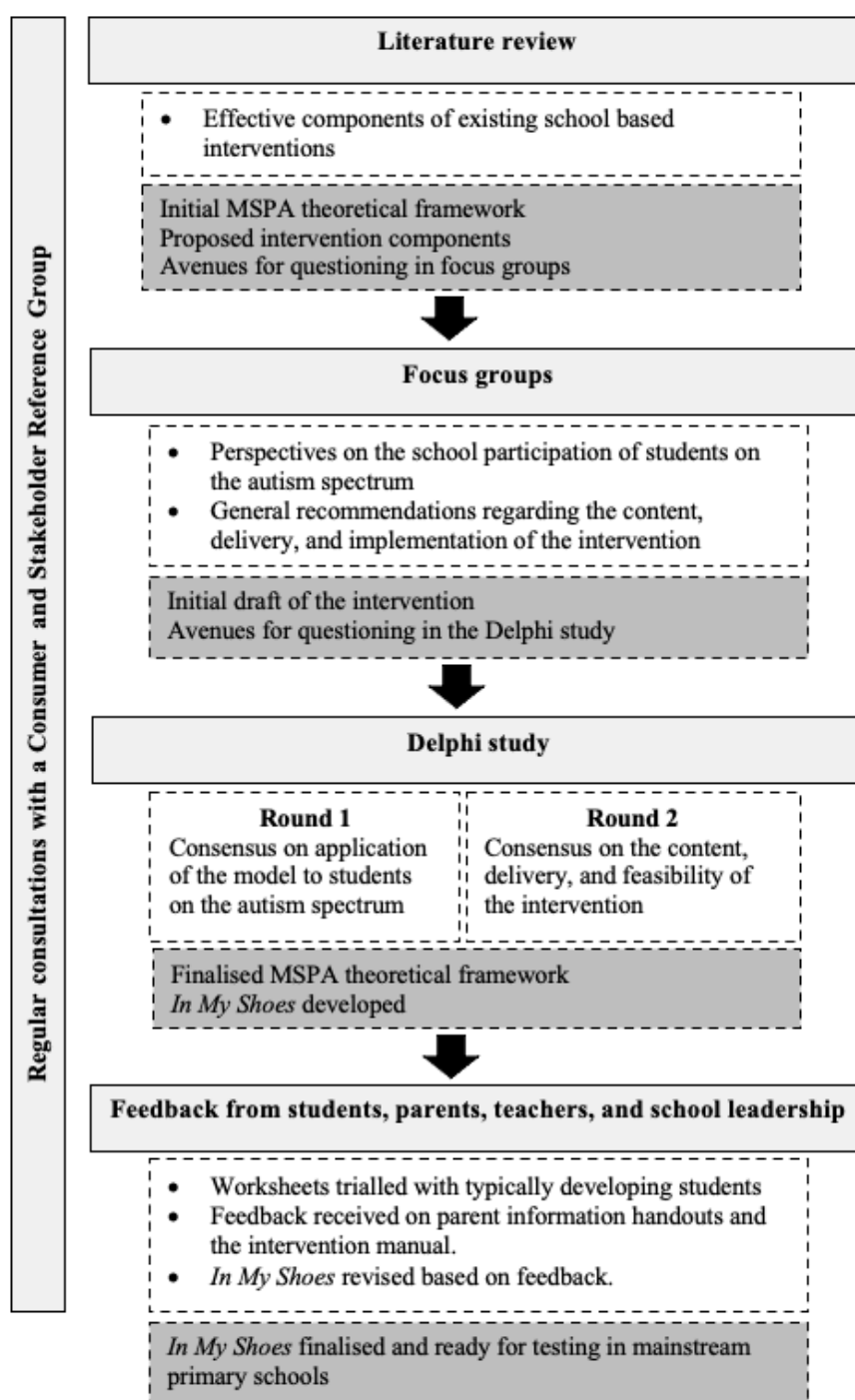
A series of research activities and studies informed the development of the school-based intervention, which involved: (a) a literature review of effective components of existing school-based interventions; (b) regular consultations with a Consumer and Stakeholder Reference Group (CSRG); (c) focus groups with parents and educators to explore their perspectives on the school participation of students on the autism spectrum and gain general recommendations regarding the intervention (Hodges, Joosten, et al., 2020); (d) a national 2-round Delphi study to gain consensus on the application of the fPRC to students on the autism spectrum and recommendations on the content, delivery and feasibility of the intervention (Hodges, Cordier, Joosten, & Bourke-Taylor, 2021); and (e) feedback from students, parents, educators on intervention resources.

Ethics approval was obtained from the Human Research Ethics Committee at Curtin University (HREC2016-0150) and permission granted from relevant schooling sectors, such as Catholic Education Western Australia and the Association of Independent Schools Western

Australia (AISWA) prior to data collection. Figure 15 illustrates the multi-stage iterative process of developing the intervention and outcomes of each stage of the research, described below.

Figure 15

Multi-Stage Iterative Process of Intervention Development



Literature Review

Effective Components of Existing School-Based Interventions

Research indicates school-based interventions that yield the most successful results are those that are embedded across the whole school, using a multi-modal approach (Clark, Adams, Roberts, & Westerveld, 2019; Goldberg et al., 2019). This approach typically involves coordinated action between “...curriculum, teaching and learning, the school ethos and environment and family partnerships” (Goldberg et al., 2019, p. 771). The primary author conducted a series of electronic database searches to identify intervention studies or reviews that reported on the effectiveness of school based interventions. Included studies were published in the last 15 years, reported on the effectiveness of intervention components of school based interventions but were not necessarily specific to students on the autism spectrum. Studies were independently reviewed and summarised by the primary author, and then discussed with the research team, until agreement was reached to identify core components of the intervention. These included: (a) professional learning for teachers and school leadership staff; (b) teacher-led whole class lesson plans; (c) peer training for selected peers; (d) activity ideas to incorporate key messages across the whole school; and (e) weekly parent information handouts and invitations for parents to participate in the intervention.

The provision of professional learning is imperative to support the integration and sustainability of school-based interventions (Clark et al., 2019). Teachers often report a lack of training in relation to students on the autism spectrum. For example, in a recent study in Sweden, only 14% of staff reported receiving any formal training in teaching students with neurodevelopmental disabilities (Bartonek, Borg, Berggren, & Bolte, 2018). As a result, teachers often felt ill-equipped to meet student needs and deliver school-based supports. The professional learning component of the intervention includes training and ongoing support,

including information related to autism, as well as specific instructions on how to implement the intervention, for teachers and school leadership staff delivering the intervention.

Teacher-led whole class lesson plans were developed to immerse all students in learning that aims to improve students' interpersonal empathy and ability to display behaviours that help others participate and feel included at school. School participation barriers identified in the MSPA were grouped into themes, which then formed proposed lesson topics using a strengths-based approach. For example, staying on task, completing worksheets, and following classroom instructions and routines were grouped into a theme called 'helping each other in the classroom'. This lesson aims to support students to take the perspective of others who may find learning in class more difficult, due to difficulties with skills such as attention, self-regulation, executive functioning, and social communication. It aims to teach students how to recognise when a peer is having difficulty in the classroom and practise ways to help and learn ways to ask for help themselves when they needed it in class. Intervention techniques deemed effective for students on the autism spectrum such as peer mediation (Chan et al., 2009), video modelling and role play (Thompson, 2014) were incorporated into lesson plans. For example, role play was incorporated into the 'helping each other in the classroom' lesson, which involved an activity in this lesson requiring students to take the perspective of students who have limited verbal communication by trying to communicate what is written on a piece of paper to a partner without using any words.

Peer involvement in interventions play a critical role in promoting social interactions and friendships and creating communities where all students help each other learn (National Association of Special Education Teachers, 2020). Peer involvement also allows interventions to be delivered within a child's natural environment; providing ongoing opportunities for students to practice their social skills and increase the likelihood skills will be generalised across settings (Chan et al., 2009; Watkins et al., 2015). While the whole class component of

the intervention aims to teach all students to be natural peer mentors, the peer training component involves selecting a small number of peers with strong interpersonal skills to receive additional teacher-led training prior to the commencement of the intervention, to support them to provide additional support to target students in the classroom and playground.

Involving parents in school-based interventions reinforces complementary roles of families and educators and extends opportunities for learning across contexts where students spend most of their time (Goldberg et al., 2019). The parent component of the intervention involves weekly information handouts and inviting parents to participate in intervention-specific activities. At a school level, literature recommends reinforcing core concepts through non-curriculum-based activities in the school designed to promote a positive school climate (Minniss & Stewart, 2009; Rowe, Stewart, & Patterson, 2007). The whole school component of the intervention includes information for school leadership staff about the importance of school involvement for student outcomes (Carrington et al., 2020; Goldberg et al., 2019) and activity ideas to incorporate key messages across the school. Prior to further development, information was obtained from students, parents, educators, researchers and clinicians via a reference group, focus groups (Hodges, Joosten, et al., 2020), Delphi study (Hodges et al., 2021), and online feedback surveys to develop and further refine the intervention until it was ready to test in mainstream primary schools.

Regular Consultation with a Consumer and Stakeholder Reference Group

Throughout the intervention development process, a CSRG were consulted, which included an occupational therapist, speech pathologist, teacher, deputy principal and two parents of primary school students on the autism spectrum. One parent, who had two primary school-aged children on the autism spectrum, also had a diagnosis of autism herself and had a professional background in teaching. In the beginning, the primary author met with the group to ask more general questions relating to research design and the readability of participant

information sheets. As the research progressed, the primary author met with individual members of the reference group as required. For example, the deputy principal was consulted on ways to maximise school uptake of the intervention, whereas parents were consulted on their preferred use of language in the autism specific lesson plan and strategies to maximise parent engagement. The utilisation of a CSRG helped to understand consumers' and stakeholders' lived experiences with research and school-based supports, which helped to identify perceived barriers in implementing the intervention as well as problem-solve ways to maximise uptake of the intervention and ensuing research (Mathie et al., 2014).

Primary school students with and without autism were also involved in co-designing and co-producing intervention resources. For example, the school experiences of real-life students on the autism spectrum were explored and documented in an edited documentary style video developed in collaboration with the West Australian Screen Academy at Edith Cowan University. Typically developing primary school aged students were also involved in intervention development, acting in a series of interactive video resources for use in the whole-class component of the intervention. Involving students in developing intervention resources was integral in ensuring the authentic lived experiences of school aged students were addressed, and that resources were relevant and suitable to end users (Consumer and Community Health Research Network, 2017).

Focus Groups

Focus groups were used to explore the perspectives of parents and educators on the school participation of primary school students on the autism spectrum and to seek recommendations regarding the content and delivery of the intervention (Hodges, Joosten, et al., 2020). Four separate focus groups involving a total of 26 participants were conducted in Perth, WA. Two focus groups were conducted with a total of 15 parents of children on the autism spectrum attending mainstream primary school. Two focus groups were conducted

with a total of 11 educators including teachers (n=5), deputy principals (n=1) and learning support coordinators (n=5) who reported having experience working with primary school students on the autism spectrum in a mainstream setting.

Parents and educators identified several intrinsic (e.g., students school connectedness and sense of self) and extrinsic (e.g., school culture and educator attitudes, knowledge, and skills) factors impacting the school participation of primary school students on the autism spectrum and emphasised the importance of developing school-based interventions that focus on addressing the psychological aspects of students' school experience (Hodges, Joosten, et al., 2020). More detailed findings are reported elsewhere (Hodges, Joosten, et al., 2020) and helped to verify and enrich school participation barriers identified from the literature in the MSPA.

Parents and educators also provided general recommendations, which informed the overall approach of the intervention as well as the content, dosage (i.e., frequency and intensity) and method of delivery of the professional learning and whole class components of the intervention. Recommendations regarding ways to increase uptake of the intervention from parents' and educators' perspectives were also provided. Overwhelmingly, parents and educators felt the intervention should adopt a strengths- and differences-based approach, focusing on raising students' awareness, understanding and acceptance of autism. Educators emphasised the importance of embedding lesson content into the curriculum with specific reference to curriculum outcomes in the manual and providing ideas on ways to individualise lesson content to the diverse needs of students and classrooms. To maximise uptake of the intervention, educators suggested resources need to be 'ready to go' with comprehensive lesson plans and printable resources to minimise burden for teachers (Hodges, Joosten, et al., 2020). This information was used to develop a more detailed description of the intervention, including: (a) a revised list of whole class lesson topics, (b) proposed content of professional

learning, (c) weekly parent information handouts, and (d) proposed method of delivery of intervention components. These findings helped to guide avenues of questioning in the next phase of the research, which involved a national Delphi study.

Delphi Study

Consensus from expert clinicians, researchers and educators was obtained on the content, delivery and feasibility of the intervention using an online two-round national Delphi study. Round one (clinicians, n=34; researchers, n=17; educators, n=25; total experts, n=76) focused on seeking expert opinion on the application of the fPRC to students on the autism spectrum. This round also provided evidence to support the relevance of the intervention, with all experts agreeing that improving the school participation of students on the autism spectrum, is important enough to warrant the development of an intervention and that school connectedness is not currently addressed in Australian curriculum. Round two (clinicians, n=27; researchers, n=18; educators, n=20; total experts, n=65; response rate = 87%) focused on gaining expert opinion on the importance of proposed whole class lesson topics and the feasibility of implementing proposed intervention techniques. More than 90% of experts agreed with the proposed content for lesson topics and reported intervention techniques were feasible or very feasible in the school environment. More detailed findings from the Delphi study are reported elsewhere (Hodges et al., 2021) and helped to develop and refine intervention components. For example, the Delphi study helped to determine that whole class lesson topics would be delivered in short (i.e., less than 60 minutes) regular sessions over the course of a term and that professional learning would focus on helping teachers to apply intervention content to their classroom and discuss ways the intervention can be practically incorporated into a school day.

Feedback from Students, Parents, and Educators on Intervention Resources

Feedback on intervention resources was obtained from students, parents, and educators (i.e., teachers, deputy principals, learning support coordinators) so that the intervention could be refined prior to a feasibility study. Educators' perspectives were also obtained on proposed data collection methods for the feasibility study.

Worksheets from the whole class component of the intervention were trialled with five typically developing primary school students for clarity of instruction and comprehensibility. These students were recruited using convenience sampling through networks of the primary author. Minor alterations were made to wording and formatting of the worksheets based on students' feedback. Authors planned to seek feedback on the intervention from students on the autism spectrum, via online surveys and qualitative interviews, once the intervention had been piloted in primary schools. After having first-hand experience with the intervention, students would be able to reflect on their own experiences and provide feedback on how the intervention could be improved; avoiding hypothetical questions, which many students on the autism spectrum find difficult. Future iterations of the intervention will incorporate feedback from students on the autism spectrum to refine the intervention and improve outcomes in future research.

Weekly parent information handouts and the intervention manual were reviewed by parents and educators respectively using online surveys. Parents and educators were recruited using convenience and snowball sampling through networks of the primary author. Recruited parents and educators were also asked to identify other potential parents and educators. Potential participants were sent an email with an invitation to participate. Once they consented, the primary author sent through relevant intervention resources with a personalised link to an online survey (Qualtrics XM, 2021). The survey asked participants to respond to statements about the intervention resources on a 5-point Likert scale (1= strongly agree to 5 =

strongly disagree). For example, educators were asked to respond to statements such as “The manual was easy to read”, “I understood content of lesson plans”, and “I understood the examples provided in the professional learning and how these examples linked to the content”. Participants were prompted to provide reasoning for their responses if they selected ‘neither agree nor disagree’, ‘somewhat disagree’ or ‘strongly disagree’.

A combination of quantitative and qualitative approaches was used to analyse survey responses. Survey responses were imported into the Statistical Package for the Social Sciences (SPSS) (IBM Corporation, 2015) software and anonymised prior to analysis. Descriptive statistics were used to report participants’ responses to Likert scale items and agreement was reached (i.e., no changes were made to intervention resources) when more than 75% of participants responded ‘strongly agree’ or ‘somewhat agree’ to survey items. Content analysis was used to analyse participants written responses to identify recommended changes to specific intervention resources.

Eleven parents and 10 educators provided feedback on the intervention. Seven parents had children in years 1 to 3 and three of the 11 parents had a child with a diagnosed disability. Five educators were teachers from independent schools and six of the 10 educators had more than 10 years’ experience in their current role.

Parent feedback on weekly information handouts and proposed parent engagement was positive and agreement was reached on all survey items (see SI Table 1). More than 90% of parents reported parent information handouts were easy to read, that information was relevant and that they understood the content as well as examples provided and how these linked to the content. More than 80% parents reported they felt they could apply strategies at home with their children and that proposed methods of parent engagement were appropriate. Two parents raised concerns in qualitative comments over the depth of information provided,

suggesting researchers condense and chunk information so that it is more visually appealing for parents.

Educators provided valuable feedback on the intervention manual, lesson plans, professional learning, and resources and agreement was reached on all survey items (see SI Table 2). All educators reported intervention resources were easy to read, engaging, that they understood the content and examples provided and that the type and depth of information were appropriate. Two of the 10 educators expressed concern that time allocated to lesson plans was unrealistic and reported time management would depend on teachers' skills and experience. Educators reported, however, that lesson plans were thorough and allowed for flexibility and that teachers were able to use their judgement to modify or extend students. All educators reported understanding the proposed methods of data collection for the feasibility study, however, expressed concern about the amount of time it would take to administer measures with the whole class. We used these findings to make changes to the intervention manual, such as emphasising key messages of each lesson, highlighting mandatory activities and opportunities for individualisation. We also reviewed data collection methods for the feasibility study and reduced the number of whole class measures to minimise burden for teachers.

The Resulting Intervention: *In My Shoes*

Based on the above research activities, the school-based intervention, entitled *In My Shoes*, has been developed (Hodges, Cordier, Joosten, & Bourke-Taylor, 2020). *In My Shoes* aims to improve the school participation of primary school students aged between 8 and 10 years (grades 3 and 4) on the autism spectrum and their typically developing peers. The intended outcomes of *In My Shoes* for *all* students are to:

- a. increase understanding and awareness of differences in the way students experience autism and school (*i.e., preferences*)

- b. increase feelings of being accepted, respected, included and supported by others in the school social environment (*i.e., school connectedness*);
- c. increase self-awareness of strengths and differences and the strengths and differences of peers (*i.e., sense of self*);
- d. improve confidence in their abilities to recognise when someone needs help, how to help others and ask for help at school (*i.e., sense of self and activity competence*); and
- e. improve students' interpersonal empathy and use of pro-social behaviours to include peers in the classroom and playground (*i.e., activity competence*).

Intervention outcomes are specifically linked to intrinsic student factors impacting school participation outlined in the MSPA (see Figure 14).

In My Shoes is designed to be delivered over the course of a school term (approximately 10 weeks) and includes the following components: (1) standardised online professional learning and ongoing face to face or online support for teachers and school leadership staff; (2) teacher-led whole class lesson plans; (3) peer training for selected peers; (4) activity ideas to incorporate key messages across the whole school; and (5) weekly parent information handouts and invitations for parents to participate in the intervention.

Intervention resources are made available to schools on a USB memory stick and include professional learning video presentations, an online interactive PDF manual, printable lesson plans, worksheets and resources, and interactive video resources with real-life students on the autism spectrum sharing their school experiences.

The professional learning component encompasses all intervention outcomes, aiming to support teachers' understanding of the content of *In My Shoes* and increase their capacity to utilise intervention techniques to support the school participation of students on the autism spectrum. The professional learning component includes supplementary pre-reading material

detailing school participation barriers that result from characteristics of autism and evidence-based intervention techniques to support students on the autism spectrum in the classroom. Additionally, the resources include four pre-recorded video presentations (ranging from 4 to 24 minutes) of the primary author explaining the intervention and providing practical demonstrations of intervention techniques such as video modelling. Teachers are encouraged to complete a pre-post professional learning questionnaire that evaluates their adherence to reviewing supplementary material and the intervention manual, as well as their confidence in delivering specific components of the intervention. The purpose of these questionnaires is to identify teachers' perceived barriers to implement the intervention so that the primary author can provide targeted support to teachers. School leadership staff involved in supporting teachers to deliver the intervention (e.g., deputy school principals, school psychologists or learning support coordinators) are also encouraged to complete the professional learning so that they can adequately support teachers and assist in implementing the whole school component of the intervention. The primary author then organises follow up online or face-to-face meetings with teachers and school leadership staff to clarify any components of the intervention and to help teachers apply concepts in their classroom.

The whole class component includes 10, 45-minute lesson plans designed to be delivered by the classroom teacher to the whole class (see Figure 16 for an overview of lesson topics). Each whole class lesson plan is designed to target *specific* intervention outcomes. Some lesson plans focus on targeting one intervention outcome, whereas others target several intervention outcomes. Over the 10 lesson plans, all intervention outcomes are targeted several times using a range of evidence-based intervention techniques including role play and video modelling, as well as educational practices identified to be feasible by educators (e.g., worksheets, whole class discussion). The whole class component starts by helping students to increase self-awareness of their strengths and differences and that of their peers (*i.e., sense of*

self); focusing on celebrating student differences; reflecting on how each student adds value to the classroom, and identifying behaviours that make peers feel included, accepted, and valued for their differences (*i.e., school connectedness*). Students then learn about autism and how students on the autism spectrum experience school, hearing real-life students' perspectives on a documentary style video. Lessons then progress to teaching the core concept of the intervention, 'look, think, decide', which teaches perspective taking and social problem-solving skills by helping students to recognise body clues and how to use these clues to deduce what someone else might be thinking and feeling so that they can decide on the best course of action to help peers participate and feel included. Students are asked throughout the intervention to reflect, using interactive video resources and comic-strip style illustrations, on what they would think or how they would feel if they were in a particular character's shoes and what they think the character should do to support their peers in different situations. Each lesson aims to teach these skills with a particular context in mind; for example, how to recognise and support peers in the classroom versus the playground versus school organised events such as excursions, assemblies, or sports carnivals. Finally, lesson plans highlight opportunities to incorporate students' preferences by building connections with peers who have similar interests and encouraging teachers to incorporate students' strengths and interests into activities wherever possible.

The content of whole class lesson plans align with social emotional learning principals, which are an integral part of education and human development (Jones & Bouffard, 2012; Pasi, 2001); supporting students to acquire and apply knowledge, skills and attitudes to develop healthy identities, manage their emotions, feel and show empathy for others and establish and maintain supportive relationships at school. Links to state and national curriculum and social emotional learning competencies are explicitly referred to at the beginning of each lesson plan for teachers' assessment and reporting requirements.

Teachers are also provided with examples in the intervention manual on ways they can adapt or individualise lesson plans, in line with principals of universal design (Center for Applied Special Technology, 1998; Orkwis, 2003), to meet the diverse learning needs of students in their classroom. Refer to SI Table 3 for an example of a whole class lesson plan, detailing target intervention outcomes, specific objectives, and methods of delivery.

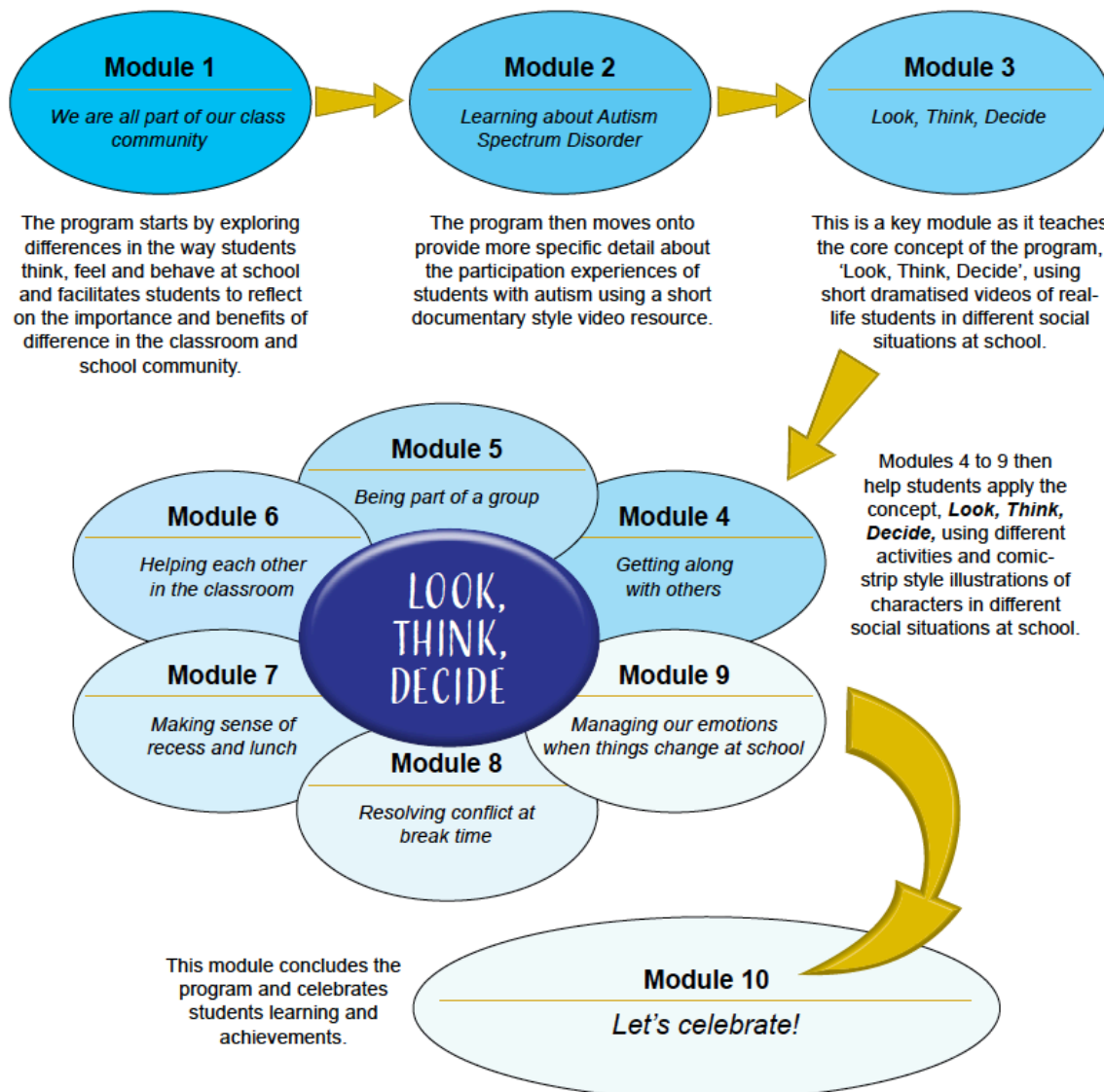
Figure 16

Overview of Whole Class Lesson Topics



WHOLE CLASS PROGRAM

Overview of modules



The peer training component of the intervention focuses on supporting selected peers to further build on their interpersonal empathy and use of pro-social behaviours (*i.e., activity competence*) to support students in the classroom and playground. This component of the intervention includes information about the benefits of peer involvement in school-based interventions and guides the teacher to carefully select three to four students in their class who consistently attend school, have a history of being reliable and responsible, may be interested and willing to help peers, have strong social and interpersonal skills, and have similar interests to target students. Selected peers participated in a teacher-led short informal discussion-based training in the first week of the intervention. The content of the training focuses on helping students to identify when someone looks lonely in the playground or are having difficulty in the classroom, and what they could do to help in these situations. The training draws on students' previous experience and helps to highlight ways they may be able to help their peers at school.

The whole school component of the intervention includes information about the importance of school involvement for intervention outcomes, as well as recommended activity ideas to incorporate key messages of the intervention across the school. Activity ideas include example themes for assembly items, inserts for school newsletters about key messages of the intervention, and recommended books and resources for a library space about autism and neurodiversity. The whole school component aims to target all intervention outcomes over the course of the intervention. For example, an assembly item about ways students can make peers feel more accepted, respected and included at school would target the *school connectedness* intervention outcome, whereas a library space about autism would target the *preferences* intervention outcome by aiming to increase students' understanding and awareness of autism.

The parent component of the intervention encompasses all intervention outcomes aiming to support parents to increase their understanding of the content of *In My Shoes* and ways they can support generalisation of skills in the home environment. This component includes weekly information handouts sent by teachers to parents detailing lesson content and regular opportunities for teachers to invite parents to participate in intervention specific activities. Teachers are also encouraged to check-in regularly with parents about their understanding of parent information handouts and provide regular feedback about students' learning via photos or videos on school portals.

Implications for Research and Practice

The imperative to develop a school-based intervention to improve the school participation of students on the autism spectrum arose from growing literature on the long-term negative impact of reduced school participation on student outcomes (Furlong et al., 2003; Maddox & Prinz, 2003; Shochet et al., 2006). We designed *In My Shoes* based on our own theoretical model of school participation and autism and a series of research activities, which aimed to gain iterative feedback from students, parents, educators, clinicians, and researchers with expertise in the topic area. The MSPA was imperative in defining constructs of interest to be targeted in the intervention and ensured the intervention was rooted in theory and evidence. Each step in the research process offered valuable comments and revisions to shape the intervention.

To participate at school, students need to have necessary skills and abilities, have self-determination, positive self-esteem and feel confident and satisfied in their abilities at school, feel accepted, respected, included, and supported by teachers and peers, and have interests or activities that hold meaning to them (Hodges et al., 2021; Hodges, Joosten, et al., 2020). Rather than focusing on school participation barriers or students' skills in isolation (illustrated from left to centre in Figure 14), *In My Shoes* utilises a strengths-based approach to

holistically promote school participation enablers using evidence-based intervention techniques (illustrated from right to centre in Figure 14). The deliberate decision to immerse *all* students, not just those on the autism spectrum, in learning that focuses on behaviour and knowledge change, was important in shifting perceptions that students' school participation occurs in isolation. More accurately, that it is a collective effort of all individuals within the school environment to help others participate and feel included at school. Framing lesson content around the tasks, activities and routines in which students participate, rather than the skills they need to participate, shifts the focus away from individual performance components; thereby allowing us to adopt a more functional approach to support student school participation. In this way, we can focus on how individuals within the environment can support each other to learn new skills, build positive self-esteem and feelings of being accepted, respected, and included at school.

The involvement of consumers was crucial in developing and refining the intervention (Consumer and Community Health Research Network, 2017). Expert recommendations from the Delphi study (Hodges et al., 2021) and feedback on intervention resources from students, parents and teachers invaluable in providing practical suggestions to ensure the intervention would be relevant, appropriate, and meet the needs of end users. Although we received feedback from many stakeholders including students, one that could have been improved was that of students on the autism spectrum. We plan to seek feedback from students on the autism spectrum once the intervention is piloted in primary schools; this way, students can reflect on their own experiences and provide feedback to improve the intervention and the potential outcomes of future research. We also suggest future research aims to form a working party of students on the autism spectrum across year levels to provide feedback on the intervention and its resources. This would help to better understand students' lived school experiences (Fletcher-Watson et al., 2018), the practicalities of how the intervention would be

perceived by students and their peers and provide invaluable feedback on the intervention and its resources.

The next step of the research process is to evaluate the feasibility, fidelity, and preliminary effectiveness of *In My Shoes* in mainstream primary schools. Once a feasibility study is conducted, we will be able to evaluate the interaction between constructs and the relationships illustrated in the MSPA and revise the model accordingly. Despite increased emphasis on the use of evidence-based interventions in schools, there continues to be widespread implementation of interventions that lack a strong theoretical rationale or that have minimal evidence to support their effectiveness (Odom, Collet-Klingenberg, Rogers, & Hatton, 2010). The process we undertook to identify and define constructs of interest and mechanisms to effect change in these constructs was integral in ensuring intervention had a strong theoretical rationale; helping us to communicate how and why we think the intervention is likely to work (Campbell et al., 2007). The MSPA and intervention development process described in this paper, can be used by other researchers, clinicians, and educators as a guide to develop interventions to support the school participation of students on the autism spectrum.

Conclusion

A novel curriculum embedded peer-supported school-based intervention, entitled *In My Shoes*, that aims to improve the school participation of students on the autism spectrum and their typically developing peers has been developed from this multi-stage iterative research process. A theoretical model illustrating the interactive process between characteristics of autism and factors that promote school participation is also presented. The impetus to develop interventions with a strong theoretical rationale and next steps for research are discussed.

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Supporting Information

SI Table 1

Summary of Online Parent Feedback on Parent Information Handouts

SI Table 2

Summary of Online Educator Feedback on Intervention Manual and Data Collection

Procedures

SI Table 3

Example Whole-Class Lesson Plans Including Intervention Outcomes, Specific Objectives and Method of Delivery

SI Table 1*Summary of Online Parent Feedback on Parent Information Handouts*

Questions	Response (%)				
	SA	SWA	NAND	SWD	SD
Parents (n=11)					
The parent information handouts are easy to read	46	54	0	0	0
The parent information handouts are presented in a way that is engaging	62	30	0	8	0
I understood the content of the parent information handouts	85	15	0	0	0
I understood the examples provided in the parent information handouts and how these examples linked to content	78	22	0	0	0
The type of information provided in the parent information handouts is relevant	62	38	0	0	0
The depth of information provided in the parent information handouts is appropriate	62	22	8	0	8
I would be able to apply at least some of the suggested strategies on the parent information handouts to help generalise my child's learning from In My Shoes to the home environment	69	8	8	0	0
The proposed methods of parent involvement in In My Shoes are suitable	62	15	8	0	0

Note. SA= strongly agree; SWA = somewhat agree; NAND = neither agree nor disagree; SWD = somewhat disagree; SD = strongly disagree

SI Table 2

Summary of Online Educator Feedback on Intervention Manual and Data Collection Procedures

Questions Educators (n=10)	Response (%)				
	SA	SWA	NAND	SWD	SD
<i>Intervention manual</i>					
The manual is easy to read	80	20	0	0	0
The manual is easy to navigate	60	20	20	0	0
The manual is presented in a way that is engaging	70	30	0	0	0
The type of information provided in the manual is relevant	70	30	0	0	0
The depth of information provided in the manual is appropriate	90	10	0	0	0
I understood the content of the manual	90	10	0	0	0
I understood the examples provided in the manual and how these examples linked to content	90	10	0	0	0
I understood instructions in how to use the manual	70	30	0	0	0
<i>Lesson plans</i>					
The lesson plans are easy to read	60	40	0	0	0
The lesson plans are presented in a way that is engaging as a teacher	60	40	0	0	0
I understood the content of the lesson plans	90	10	0	0	0
I understood the examples provided in the lesson plans and how these examples linked to the content	90	10	0	0	0

Questions	Response (%)				
	SA	SWA	NAND	SWD	SD
Educators (n=10)					
I understood instructions in how to deliver the lesson plans to students	90	10	0	0	0
The 45 minute time allocation for lesson plans is realistic	30	50	10	10	0
The time allocated for individual activities in lesson plans is realistic	50	30	10	10	0
The type of activities included in lesson plans are age appropriate	70	30	0	0	0
The worksheets and resources are presented in a way that is fun and engaging for students	50	50	0	0	0
The PowerPoint resource provided, to use as an additional visual support while teaching lessons, is useful	80	20	0	0	0
There is sufficient detail in lesson plans about ways to scaffold students learning	70	30	0	0	0
Links to state and national curriculum in lesson plans is clear and accurate	90	10	0	0	0
<i>Supplementary pre-reading</i>					
The supplementary information is easy to read	60	40	0	0	0
The supplementary information is presented in a way that is engaging	70	20	10	0	0
I understood the content of the supplementary information	90	10	0	0	0
The type of supplementary information provided is relevant	90	10	0	0	0
The depth of supplementary information provided is appropriate	80	20	0	0	0
The type of information provided in online professional learning presentations is relevant	90	10	0	0	0
The depth of information provided in online professional learning is appropriate	90	10	0	0	0
I understood the content of online professional learning presentations	90	10	0	0	0

Questions	Response (%)				
	SA	SWA	NAND	SWD	SD
Educators (n=10)					
I understood the examples provided in the professional learning and how these examples linked to the content	90	10	0	0	0
I understood instructions in how to complete online professional learning presentations	70	30	0	0	0
The professional learning is presented in a way that is engaging	80	20	0	0	0
Please indicate how you would prefer to access In My Shoes professional learning in the future	All online (20)		As provided (80)		
Please indicate how you would prefer to access In My Shoes manual and resources if you were implementing the program in your classroom	Electronic/ soft copy (20)		Both (80)		
Please indicate your preferred use of language to refer to students/ with autism in the In My Shoes manual (select as many that apply)	Identity first (10%)		Person first (90)		
Is there any information that you expected to see in the supplementary information that you did not?	No (100)				
Is there any information you expected to see in the online professional learning presentations that you did not?	No (100)				
Is there any content you expected in the manual that is not?	No (100)				
<i>Note.</i> SA= strongly agree; SWA = somewhat agree; NAND = neither agree nor disagree; SWD = somewhat disagree; SD = strongly disagree					

SI Table 3

Example Whole-Class Lesson Plans Including Intervention Outcomes, Specific Objectives and Method of Delivery

	Intervention outcomes	Specific objectives	Method of delivery
Module 3 <i>Being part of a group</i>	<ul style="list-style-type: none"> increase self-awareness of strengths and differences and the strengths and differences of peers (<i>i.e., sense of self</i>); improve students' interpersonal empathy and use of pro-social behaviours to include peers in the classroom and playground (<i>i.e., activity competence</i>) 	<p>At the end of this module students will:</p> <ul style="list-style-type: none"> Understand some people have more difficulty than others understanding rules, understanding other people's point of view and being flexible which can cause conflict in groups Take the perspective of others who find group work difficult or do not enjoy group work Identify warning signs that group work in class is not going well Identify and practise strategies or ways of resolving conflict in groups and Reflect on the importance and benefit of working together and being part of a group at school 	<ul style="list-style-type: none"> Students participate in a group activity where they have to work together to create a structure out of provided materials. <i>Role play</i> – one group member (without his/her peers knowledge) is required to act like a character from <i>In My Shoes</i> with the aim of causing conflict in the group. <i>Video modelling</i> – the classroom teacher videos one group participating in the activity and plays back the video to students at the help. The teacher pauses the video at key points to help students pinpoint specific body clues (e.g., facial expressions, body language, tone of voice, volume or voice, actions or behaviour) of students that help them

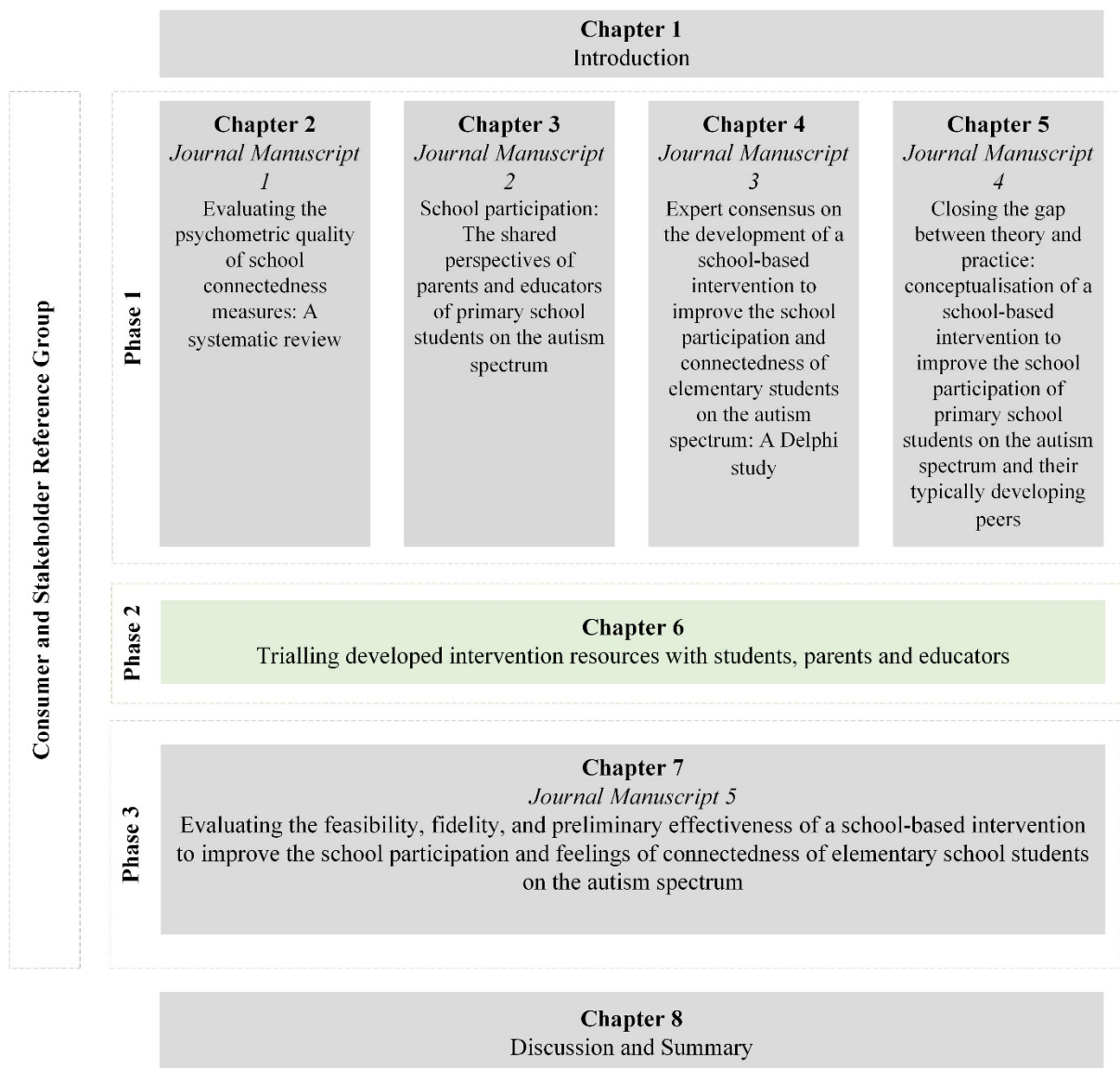
Intervention outcomes	Specific objectives	Method of delivery
		<p>know the group work is starting to break down.</p> <ul style="list-style-type: none"> • <i>Whole class discussion</i> – students brainstorm strategies that students could have used to manage conflicts or difficulties and the good things that could have happened if they chose these actions.

Chapter 6: Trialling Intervention Resources with Students, Parents, and Educators

Chapter 6 outlines the methodology and results of phase 2 of the research, which involved trialling developed intervention resources with students, parents, and educators. Findings from the trial are reported briefly in journal manuscript 4 (Chapter 5), however, a more detailed account of students, parents and educators feedback are reported in this Chapter (see Figure 17).

Figure 17

Outline of Thesis, with Chapter 6 Highlighted



As described in Chapter 1, the United Kingdom Medical Research Council (UKMRC) guidelines recommend researchers conduct a sequence of carefully constructed studies prior to full scale evaluation of complex interventions (see Chapter 1, page 20; Orsmond & Cohn, 2015). Originally, the school-based intervention was planned to be piloted in a small number of schools. However, due to coronavirus disease (COVID–19) lockdowns and resulting school closures in the Perth metropolitan area in 2020, the design of the research needed to be adapted and specific intervention resources were trialled with a small number of students, parents, and educators. Trialling specific intervention resources, and not the intervention in its entirety, meant that teachers’ delivery of content and students’ response to lesson plans, as well as other aspects of research design such as appropriateness of outcome measures were not able to be evaluated until the feasibility study described in Chapter 7. These changes to research design, however, were necessary and unavoidable given the COVID-19 pandemic. The process of trialling intervention resources was invaluable in identifying perceived barriers in implementing the intervention and to identify and refine intervention components prior to the feasibility study in phase 3. Consumer engagement in this process was crucial as it helped to improve buy-in, increase research relevance and the usability of the intervention through improved context appreciation (Bombard et al., 2018). Refer to Chapter 1 (page 23) for specific objectives of this phase, and Appendix F for all relevant documents (e.g., participant information sheets, consent forms, online surveys) relating to the trial.

Trialling Worksheets for Comprehensibility, Relevance and Comprehensiveness

Typically developing primary school students were recruited from the Perth metropolitan area using convenience sampling through networks of the researchers. Parents were contacted directly and provided information about *In My Shoes* and associated research. Written informed consent and assent was obtained prior to any involvement in the research. Five typically developing primary school students aged between 8 and 11 years participated

in the trial. All attended their local mainstream primary school. I met with students in their home with parent supervision in May 2020. I provided students with a brief explanation of the intervention and then asked students to complete worksheets to the best of their ability. Questions students raised while completing the worksheets helped to identify aspects of the worksheets that were not clear and required modification. I used open ended questions and comments such as “Can you tell me what you’re finding difficult about this question?” and “Perhaps there is a way to make this question easier to understand...” to probe students understanding and identify ways to improve comprehensibility of the worksheets. Student feedback led to the following insights:

- students appeared motivated by the comic-strip conversations;
- students reported liking the characters depicted in worksheets;
- students appeared to have difficulty, at times, with the complexity of written instructions; and
- students required clarification on some terminology used in the worksheets (e.g., consequences).

Their feedback was analysed alongside feedback from parents and educators before any changes were made.

Online Feedback Regarding Parent Information Handouts and the Intervention

Manual

Parents and educators reviewed weekly parent information handouts and the intervention manual respectively using online surveys. Educators were also asked to provide feedback on proposed methods of data collection for the feasibility study. Parents and educators were recruited from the Perth metropolitan area using convenience and snowball sampling through networks of the researchers. Recruited parents and educators were also asked to identify other potential parents and educators. Potential participants were invited to

participate via email with a participant information sheet (see Appendix F1 and F2). Once they consented, the primary author sent through relevant intervention resources with a personalised link to an online survey (Qualtrics XM, 2021). The survey asked participants to respond to statements about the intervention resources on a 5-point Likert scale (1= strongly agree to 5 = strongly disagree). For example, educators were asked to respond to statements such as “The manual was easy to read”, “I understood content of lesson plans”, and “I understood the examples provided in the professional learning and how these examples linked to the content”. Participants were prompted to provide reasoning for their responses if they selected ‘neither agree nor disagree’, ‘somewhat disagree’ or ‘strongly disagree’ (see Appendix F3 and F4).

A combination of quantitative and qualitative approaches was used to analyse survey responses. Survey responses were imported into the Statistical Package for the Social Sciences (SPSS) (IBM Corporation, 2015) software and anonymised prior to analysis. Descriptive statistics were used to report participants’ responses to Likert scale items and agreement was reached (i.e., no changes were made to intervention resources) when more than 75% of participants responded ‘strongly agree’ or ‘somewhat agree’ to survey items. Content analysis was used to analyse participants written responses to identify recommended changes to specific intervention resources.

Eleven parents and 10 educators provided feedback on intervention resources. Seven of the 11 parents had children in years 1 to 3 and three parents had a child diagnosed with ASD. Five of the 10 educators were teachers from independent schools, and six educators had more than 10 years’ experience in their current role (see Table 14).

Table 14*Parent and Educator Demographics According to Role*

	Parents (n=11)	Educators (n=10)
How many children in your family?		
2	7 (64%)	-
3	4 (36%)	-
Year level		
2	5 (46%)	-
3	2 (18%)	-
4	1 (9%)	-
5	2 (18%)	-
6	1 (9%)	-
Children with developmental delay or disability		
No	8 (72%)	-
Yes (e.g., autism, ADHD, dysgraphia, anxiety)	3 (27%)	-
Schooling sector		
Independent	-	5 (50%)
Catholic	-	1 (10%)
Public	-	2 (20%)
Private	-	2 (20%)
Current role		
Deputy Principal	-	1 (10%)
Teacher	-	6 (60%)
Learning support Coordinator	-	3 (30%)
Years of experience		
0-1 years	-	1 (10%)
4 – 5 years	-	1 (10%)
8-9 years	-	1 (10%)
>10 years	-	6 (60%)
Number of students on autism spectrum taught		

	Parents (n=11)	Educators (n=10)
3 students	-	2 (20%)
4 students	-	1 (10%)
More than 5	-	7 (70%)

Parent feedback on weekly information handouts and proposed parent engagement was positive and agreement was reached on all survey items (see Appendix F5). More than 90% of parents reported parent information handouts were easy to read, that information was relevant and that they understood the content. More than 80% parents reported they felt they could apply strategies at home with their children and that proposed methods of parent engagement were appropriate. Two parents raised concerns in qualitative comments about the amount of information provided and suggested researchers condense and chunk information so that it is more visually appealing for parents.

Educators provided valuable feedback on the intervention manual, lesson plans, professional learning, and resources and agreement was reached on all survey items (see Appendix F6). All educators reported intervention resources were easy to read, engaging, that they understood the content and examples provided and that the type and depth of information were appropriate. Two of the 10 educators expressed concern that time allocated to lesson plans was unrealistic and reported time management would depend on teachers' skills and experience in classroom management. Educators reported, however, that lesson plans were thorough and allowed for flexibility and that teachers were able to use their judgement to modify or extend students.

All educators reported understanding the proposed methods of data collection for the feasibility study, however, expressed concern about the amount of time it would take to administer measures with the whole class. Educators reported that teachers often have less than one hour a week to prepare for their classes and that the first and final weeks of term are

particularly busy, which may make it difficult to administer research measures. Educators expressed concern that students on the autism spectrum may be singled out using the smart device to complete the Experience Sampling Method (ESM) survey and were concerned that the frequency of prompts may be disruptive for students. Half of educators reported they would prefer to conduct video observations and administer paper-based outcome measures at a time that is convenient to their class, rather than a researcher entering the classroom. Most educators reported preferring person first language (e.g., student with autism or student with ASD) rather than identity first language (e.g., student on the autism spectrum or autistic student; see Appendix F6).

Modifications to Intervention Resources Based on Recommendations

Based on feedback from students and educators, the following changes were made to worksheets:

- key action words (e.g., circle, tick) were underlined;
- sentence structure and wording were simplified;
- size of text was enlarged; and
- size of comic strip scenarios was enlarged.

The following changes were made to the intervention manual based on educator feedback:

- mandatory activities and opportunities for individualisation were highlighted in lesson plans;
- hyperlinks to the Australian Curriculum and the School Curriculum and Standards Authority website were added in the manual;
- additional time was allocated for specific activities in lesson plans (e.g., activity stations in module 6 that help students to take the perspective of others who find it difficult to communicate, concentrate and self-regulate in class);

- more information was included in relevant lesson plans about the importance of providing clear explanations of key terms (e.g., consequence);
- extra hyperlinks were added to enable teachers to ‘jump’ from one section of the manual to another;
- key messages were highlighted at the beginning of every lesson plan (e.g., for module 1, “we all have strengths and differences and we all have the power to make others feel included”, was highlighted);
- a reminder was included at the beginning of the manual that stated lesson plans are designed to be a *minimum* of 45 minutes, however, may take longer depending on the depth of class discussions;
- additional suggestions to increase parent engagement (e.g., posting photos or videos of students learning to online platforms such as ClassDojo) were added in the ‘active parent involvement’ section of the manual; and
- person-first language (e.g., student with autism) was used in the intervention manual as it was developed for use by educators and professionals. Based on recent important contributions to the literature on the use of language in autism research, information relating to language preferences of students on the autism spectrum was included in the preface of the manual (Botha, Hanlon, & Williams, 2021; Bottema-Beutel, Kapp, Lester, Sasson, & Hand, 2021). Educators are encouraged to talk to students and parents about their language preferences (i.e., person-first or identity-first language) prior to the commencement of the intervention and use this language at school and during lesson plans.

The following changes were made to parent information handouts based on parent feedback:

- information was simplified and condensed;

- a one-page overview of the intervention was developed (see Appendix F7); and
- an information session (to be facilitated by the teacher or researcher) was offered to parents that included information about the intervention, autism and how parents can get involved.

In addition to changes to intervention resources, modifications were made to data collection procedures for the feasibility study. For example, the frequency of prompts on ESM smart device surveys were reduced from 7 to 5 per day in the first and final week of the intervention to reduce disruption caused by the device. Written instructions detailing how to administer student measures and video observations were also developed and provided to teachers who wished to administer these independently (see Appendix F8). The process of trialling intervention resources was integral in identifying and refining components that led to improved outcomes in the feasibility study described in Chapter 7. Identifying perceived barriers in implementing the intervention and collecting data also assisted in preparing and planning necessary supports for teachers implementing the intervention in phase 3.

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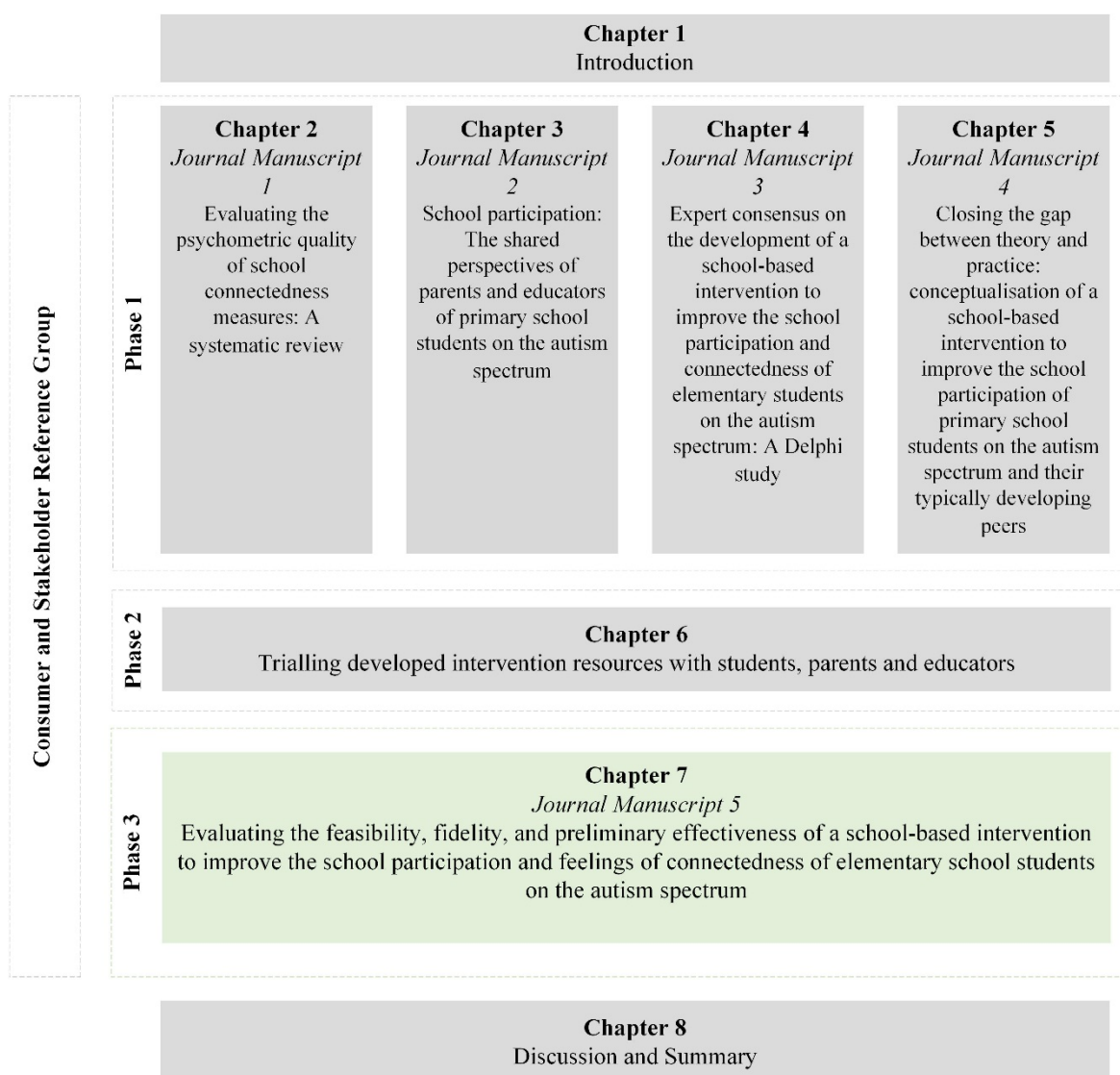
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Chapter 7: Evaluating the Feasibility, Fidelity and Preliminary Effectiveness of the School-Based Intervention

Chapter 7 outlines findings from phase 3 of the research, which involved evaluating the feasibility, fidelity and preliminary effectiveness of the school-based intervention with 10 students on the autism spectrum and their typically developing peers across six mainstream primary schools from July to October 2020 in the Perth, Western Australia (WA; see Figure 18).

Figure 18

Outline of Thesis, with Chapter 7 Highlighted



As described in Chapter 1, while feasibility, appropriateness and effectiveness are considered separate constructs under the United Kingdom Medical Research Council (UKMRC) guidelines, appropriateness was subsumed under feasibility when reporting on the findings of phase 3 to be concise (see objectives of phase 3 on pages 23 and 24). The manuscript was submitted to PLoS ONE on the 7th July 2021 and is currently undergoing peer review. The journal article has been presented as a Microsoft Word document and formatted according to American Psychological Association 7th edition (2019) guidelines, consistent with traditional Chapters in the thesis. All references for this Chapter have been listed at the end of the journal article. Refer to Appendix G for participant information sheets, consent forms and pre-post intervention outcomes used in feasibility study.

Evaluating the feasibility, fidelity, and preliminary effectiveness of a school-based intervention to improve the school participation and feelings of connectedness of elementary school students on the autism spectrum.

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Abstract

In My Shoes is a peer supported, teacher-led, school-based intervention that aims to improve the school participation and connectedness of students on the autism spectrum. Ten students across six mainstream elementary schools participated in this feasibility study. The following aspects of feasibility were explored: recruitment capability and sample characteristics, data collection procedures and outcome measures, appropriateness, implementation, and practicality of the intervention. Fidelity was explored by evaluating the delivery of intervention components against set criteria. Preliminary effectiveness was investigated by evaluating changes in intervention outcomes pre-post intervention using a range of outcome measures. Study findings provide preliminary evidence to support the interventions feasibility and effectiveness; providing useful insights into ways the intervention and the design of future research can be improved.

Key words: feasibility studies, social inclusion, autism, primary schools

Introduction

Researchers have used many terms over the years to describe the concept of school connectedness such as school belonging, bonding, engagement, and attachment. School connectedness is broadly defined as the extent to which students feel valued and cared for in their school community (Ciani et al., 2010). According to Klem and Connell (2004), by high school, 40 to 60 percent of students are persistently disconnected from school in the United States. Research indicates that a sense of school connectedness is an important protective factor to mental and emotional wellbeing (Libbey, 2004) and is linked to academic success, positive affect, high self-esteem, and life satisfaction (Bonny et al., 2000; You et al., 2008). School connectedness has also been found to reduce risk taking and antisocial behaviour and reduce the likelihood of developing depressive symptomatology (Hawkins, Catalano, Kosterman, Abbot, & Hill, 1999; Shochet et al., 2006).

Many studies have sought to understand the school experiences of vulnerable or at-risk populations to develop support for these students (Harrington, 2014; McNeely et al., 2002; Shochet et al., 2006). In recent years, there has been a growth in cross-sectional research exploring the school experiences of students on the autism spectrum. This research indicates that students on the autism spectrum experience significant participation restrictions due to barriers such as lack of teacher and peer understanding of autism and lack of appropriate accommodations, such as modification to the curriculum, and social and physical environments (Ghanouni, Jarus, Zwicker, Lucyshyn, & Chauhan, 2019; Harrington, 2014). According to a recent study involving focus groups with educators and parents, participation restrictions can include the following difficulties: remaining calm and in a state for learning in the classroom; building and maintaining relationships; adapting and responding to change and transition throughout the school day; managing conflict in play; and working in groups and engaging in classroom activities and routines (Hodges et al., 2020). According to a study by

Falkmer and colleagues (2012), elementary school students on the autism spectrum perceive their participation in mainstream school to be lower than peers and that they are "... more bullied, less liked, less involved in interaction, less understood by teachers and more insecure in the school environment compared to peers" (p. 199). Persistent challenges participating at school can lead to students feeling like they do not belong and are not included in the school environment, which can have significant long-term implications on students' academic, social and emotional wellbeing (Shochet et al., 2006).

Despite evidence emphasising the significant impact school connectedness has on student outcomes, there is an imbalance in the curriculum and a paucity of interventions aimed specifically at increasing students' experience of connection at schools (Allen et al., 2016; Centers for Disease Control and Prevention, 2009), particularly for elementary school students on the autism spectrum. Interventions exist that aim to support students to develop a particular set of skills (social skills; Mackay et al., 2007; McConnell, 2002; Ostmeier & Scarpa, 2012), with an expectation that these skills will have a flow-on effect on students' participation and inclusion at school (Imms et al., 2016). These interventions fail to include students' peers and address the range of barriers experienced in the early schooling years (Kasari & Smith, 2013). Evidence-based interventions are needed that immerse *all* students in learning that aims to improve students' interpersonal empathy and ability to display behaviours that help others participate and feel included at school.

This study aimed to evaluate the feasibility, fidelity, and preliminary effectiveness of a curriculum embedded, peer supported, teacher led school-based intervention, entitled *In My Shoes*, with elementary school students on the autism spectrum and their typically developing peers in WA. To investigate feasibility, we evaluated (a) recruitment capability and sample characteristics; (b) data collection procedures and outcome measures (c) appropriateness (i.e., the extent to which *In My Shoes* is deemed acceptable, satisfying, or appealing to

participants); (d) implementation and practicality (i.e., the extent to which *In My Shoes* can be successfully delivered using existing means and resources) (Bowen et al., 2009; Orsmond & Cohn, 2015b). To evaluate fidelity, we evaluated (e) teachers' delivery of the intervention against specific criteria; (f) parents' receipt and response to weekly parent information handouts; and (g) schools' implementation of whole-school activity ideas as recommended in the manual. To explore preliminary effectiveness, we evaluated (h) changes in the classroom participation and subjective experiences of students on the autism spectrum; and (i) students' self-report school engagement and belonging pre-post intervention using a range of outcome measures.

Methods

Participants

Grade 3 and 4 independent mainstream classrooms (students aged 8 to 10 years) in the Perth Metropolitan area with at least one student with a confirmed diagnosis of autism or Asperger's syndrome in accordance with DSM-IV (American Psychiatric Association, 2000) or DSM 5 criteria (American Psychiatric Association, 2013), without intellectual disability or severe language impairment, were eligible to participate in the study. Students on the autism spectrum were required to have at least a grade 1 reading level as determined by the Woodcock Reading Master Test – Third Edition to participate (WRMT-III; Woodcock, 2011).

Intervention

In My Shoes, is a manualised, peer supported, teacher-led school-based intervention designed to improve the school participation and feelings of connectedness of students on the autism spectrum aged between 8 and 10 years. A number of research activities informed the development of *In My Shoes*, including: a systematic literature review of the psychometric properties of school connectedness measures (Hodges, Cordier, Joosten, Bourke-Taylor, &

Speyer, 2018); focus groups with parents and educators to explore their perspectives on the school participation of students on the autism spectrum (Hodges et al., 2020); a national 2-round Delphi study to gain consensus on the content, delivery and feasibility of the intervention and the application of a theoretical framework to students on the autism spectrum (Hodges, Cordier, Joosten, & Bourke-Taylor, 2021); and regular consultations with a Consumer and Stakeholder Reference Group (CSRG).

In My Shoes includes standardised online professional learning and face-to-face or online support for teachers; peer training; activity ideas to incorporate key messages across the whole-school; weekly parent information handouts and opportunities for parents to participate in the program; and a whole-class program. The whole-class program includes 10, 45-minute lesson plans designed to be delivered by the classroom teacher to the whole-class and is linked to state and national Australian health curriculum. Intervention multimedia resources include: an online interactive PDF manual; printable lesson plans, worksheets and interactive video resources with real-life students and students on the autism spectrum sharing their school experiences. The core concept of the program, '*look, think, decide*', teaches perspective taking and social problem-solving skills by helping students to recognise body clues and how to use these to deduce what someone else might be thinking and feeling so that they can decide on the best course of action to help peers participate and feel included. Students are asked regularly throughout the program to reflect, using interactive video resources and comic-strip style illustrations, on what they would think or how they would feel if they were in a particular character's shoes and what they think the character should do to support their peers in different situations.

The intended outcomes of *In My Shoes* for *all* students are to: increase feelings of being connected, accepted, respected, included and supported by others in the school social environment; increase understanding and awareness of differences in the way students

experience autism and school; increase self-awareness of strengths and differences and the strengths and differences of peers; improve confidence in abilities to recognise when someone needs help, how to help others and ask for help at school; and improve student interpersonal empathy and use of pro-social behaviours to include peers in the classroom and playground.

Procedures and Measures

Prior to conducting the study, ethics approval was obtained from the Human Research Ethics Committee at Curtin University (HREC 2016-0150) and research was approved by Association of Independent Schools Western Australia (AISWA) and Catholic Education Western Australia.

The primary researcher sent a participant information sheet via email to the principals of all AISWA and Catholic mainstream elementary schools in the Perth metropolitan area. The primary researcher followed up with a phone call to identify schools that were willing and eligible to participate. Once written informed consent and assent was obtained from students on the autism spectrum, their parents and teachers via the school principal, the primary researcher contacted teachers and parents to answer any questions and to organise screening assessments and the collection of pre-intervention data. Teachers were given access to intervention resources on a USB and instructed to complete an online professional learning package located on the USB prior to the intervention. The resources included four short video presentations ranging between 4 and 24 minutes of the primary researcher explaining the intervention and providing practical demonstrations of intervention techniques such as video modelling. School leadership staff involved in supporting teachers delivering the program (e.g., deputy school principals, school psychologists or learning support coordinators) were encouraged to complete the professional learning so that they were able to adequately support teachers and help to implement the whole-school component of the intervention. The primary researcher then arranged follow up online or face-to-face meetings with teachers and school

leadership staff to clarify any components of the intervention and to help teachers specifically apply concepts to their classroom. Teachers then delivered the whole-class program across Term 3 (July to September 2020), usually delivering one 45-minute lesson per week over 10 weeks.

Screening Assessments

Screening assessments were conducted pre-intervention to identify and describe the skills and abilities of students on the autism spectrum and to confirm their eligibility for the study. Participants were informed that if they did not meet eligibility criteria, they could still participate in the study, however, their data would not be used. All participants that expressed interest in participating, met eligibility criteria and data were included in the study. Socio-demographic information was collected from schools, teachers, and parents of students on the autism spectrum. Socio-economic status was determined using the Socio-Economic Indexes for Areas (SEIFA) (Australian Bureau of Statistics, 2013). Students' diagnoses were confirmed via school and parent report.

The teacher report Children's Communication Checklist Second Edition (CCC-2; Bishop, 2006) was used to screen students' expressive and receptive language skills. Items are rated on a four-point scale to indicate frequency of occurrence of various communication behaviours (e.g., 0 = never, 3 = several times per day). The CCC-2 has a high level of sensitivity and specificity in identifying students on the autism spectrum or pragmatic language impairments (Bishop, 2006). The Woodcock Reading Master Test-Third Edition (Woodcock, 2011) was used to screen reading comprehension to confirm that students had the appropriate level of cognition to read and respond to survey questions.

The 30-item Bandura's Teachers Efficacy scale was used to assess teachers' efficacy beliefs (Bandura, 1997). Measurements are anchored on a nine-point scale ranging from 'nothing, very little, some influence, quite a bit, and a great deal'. A higher score indicates

greater efficacy. In the current study, mean teacher efficacy was computed. The average score for the 30-item score had strong internal consistency, with Cronbach's α values of 0.95 in the current study.

Proximal Outcome Measures

Feasibility. Information related to the feasibility of the intervention was gathered using a combination of quantitative and qualitative methods. All students participating in the study completed a paper-based feedback survey in the final week of the intervention. Consent from all parents of students in participating classrooms was obtained at the schools' discretion. The survey asked students to respond to statements about the intervention such as "I enjoyed *In My Shoes*" and "*In My Shoes* activities were interesting" using a 4-point Likert scale (1 = strongly disagree to 4 = strongly agree). Teachers, parents, and school leadership staff involved in supporting teachers were sent a link to an anonymous online feedback survey, individualised to their role, post intervention. These surveys asked participants to respond to statements such as "*In My Shoes* was a positive experience" and "the content of *In My Shoes* was relevant" using a 5-point Likert scale (1 = strongly agree to 5 = strongly disagree). Participants were prompted to provide reasoning if they responded 'neutral', 'disagree' or 'strongly disagree' to any of the statements. Responses to feedback surveys were supplemented with qualitative interview data through specific lines of questioning relating to the implementation and practicality of the intervention.

Fidelity. The fidelity protocol for this study was based on the behaviour change consortium treatment fidelity recommendations (Bellg et al., 2004) (see SI Table 1). The primary researcher observed one lesson in each classroom and scored teachers on a fidelity checklist, which included questions relating to adherence, duration, quality of delivery, student responsiveness and programme specificity (i.e., whether teachers adhere to activities as designed and show knowledge of content and intervention strategies). Teachers were also

required to complete weekly online fidelity checklists to ensure intervention was being delivered as stated in manual. Parents' receipt and response to weekly parent information handouts was evaluated via an online feedback survey post-intervention and following interviews. Schools' adherence to the whole-school component of the intervention (e.g., implementation of whole-school activity ideas such as assembly items, newsletter inserts) was evaluated via online teacher and school leadership feedback surveys and in interviews with teachers.

Preliminary Effectiveness. To evaluate the effectiveness of the intervention in targeting identified intervention outcomes, several measures were administered pre-post intervention. Some of these measures were conducted with students on the autism spectrum only and others with all students participating in the study.

Classroom Participation. The Behaviour Assessment System for Children – Third Edition Student Observation System (BASC 3 – SOS; Reynolds & Kamphaus, 2015) was used to conduct direct observations of the classroom behaviour of students on the autism spectrum. The SOS uses the technique of momentary time sampling (i.e., systematic coding during three second intervals spaced 30 seconds apart over a 15-minute period) to record a range of student behaviours including positive (e.g., teacher-student interaction) and negative behaviours (e.g., inappropriate movement or inattention). It also includes a 71-item observer rating scale that is completed after the time sampling procedure that gives in-depth information about students' behaviours that may impede or promote learning and adjustment in the classroom (Part A). Two 15-minute video recordings of students on the autism spectrum, participating in similar classroom activities, were taken in the first and final week of the intervention and sent to the primary researcher. The primary researcher recorded students' behaviour on the BASC 3 – SOS. An independent rater who is a qualified occupational therapist with experience working in schools and with students on the autism

spectrum, was trained in the use of the SOS and scored a 40% random sample of the pre-post video observations to establish inter-rater reliability.

Subjective School Experiences. Experience Sampling Method (ESM) was used to explore the nature and quality of students on the autism spectrum experience while participating at school. ESM, an ‘in-the-moment’ technique that is “...commonly used for the examination of the context and content of individuals’ daily life from their own perspective” (Chen, Bundy, Cordier, & Einfeld, 2014, p. 361) and has been found to be a reliable and valid tool to self-report the participation experiences of children on the autism spectrum aged 8 to 10 years (Chen et al., 2014). This methodology was chosen as it captures the influence of context on experiences, which allows for the examination of individual values relating to school participation and identifies fluctuations in perceptions of everyday experiences (Chen et al., 2014). Collecting ESM data at multiple moments throughout the day also minimises error due to recall, distortion and rationalisation and allows for exploration of the dynamic relationship between subjective experiences and everyday contexts (Hektner, Schmidt, & Csikszentmihalyi, 2007; Trull & Ebner-Priemer, 2009).

Students on the autism spectrum were required to complete a survey that had been loaded onto the mEMA app (ilumivu, 2021), which is an ESM platform designed for IOS devices. The mEMA app prompts participants to complete the ESM survey, time stamps the response and stores data for analysis. The survey was adapted from a version developed by Chen and colleagues (2015) and included closed questions and scaled items related to the student’s participation in school occupations, including the specific place (e.g., where were you when you were beeped?), the specific activity (e.g., what was the main thing you were doing?) and interaction status (e.g., who were you with? Were you talking with someone? Who were you talking to?). The ESM survey also explored the quality of their experiences relating to enjoyment, difficulty, interest, degree of involvement and importance. Emotions were

explored on a continuous scale across five domains: anxious-relaxed, lonely-sociable, sad-happy, angry-friendly, and bored-excited. The format of the questions included multiple choice, yes/no and visual analogue scales for items relating to emotions. The mEMA platform was chosen over others as it allows researchers to use images to supplement text as a visual support for students on the autism spectrum.

The ESM survey was piloted with two typically developing students aged between 7 and 11 years to ensure the questions were clear and developmentally appropriate, and the device was easy to use. Adjustments were made to the survey based on observations and students' feedback. The Flesch Kincaid readability test (Kincaid, Fishburne, Rogers, & Chissom, 1975) showed that the grade level of survey questions was 3; lower than participants reading comprehension levels identified by the WRMT-III. Prior to data collection, students on the autism spectrum, their parents and educators were provided training in the use of the device and the mEMA app. Training involved the researcher asking students to read and respond to survey items, clarifying questions and troubleshooting students' responses.

Students were provided with an iOS phone with the mEMA app installed in the first and final week of the intervention. The device randomly prompted students to respond to the survey 5 times a day for a week between 7am and 5pm. This sampling period enabled researchers to capture students' experiences while at school, as well as their transition to-and-from school. Students were informed that they could skip prompts that occurred at inconvenient times; that they would be reminded three times every five minutes to complete the survey and that the survey would become inactive after 15 minutes. Students were encouraged to seek help from their parents, educators or contact the researcher directly if they required assistance during sampling periods.

School Engagement and Belonging. All students in participating classrooms were required to complete a battery of pre–post intervention measures, including the Student Engagement Instrument – Elementary Version (SEI-E; Carter et al., 2012), Belonging Scale (Frederickson et al., 2007) and four scales developed by the research team. The SEI–E was used to assess students’ self-report levels of cognitive and affective engagement in school. The SEI–E includes 31 items and four subscales (i.e., teacher student relationships, peer support for learning, future goals and aspirations and family support for learning); scored on a 5-point Likert scale (1 = strongly disagree, 5 = strongly agree), with higher scores indicating a higher level of engagement. The SEI–E was adapted from Appleton and colleagues (2006) original SEI to ensure items addressed all relevant engagement constructs and were developmentally appropriate for primary school students. The SEI was found to have the strongest psychometric properties of 15 measures in a recent systematic review (Hodges et al., 2018); with the SEI–E showing promising psychometrics from preliminary studies for students in years 3 to 5 (Carter et al., 2012; Frederickson et al., 2007b).

The Belonging Scale is a 12-item adapted version of the Psychological Sense of School Membership scale (Goodenow, 1993b) designed for use with students from 8 years of age to assess sense of school belonging. The 12 items include six that focus on students’ general feelings towards school and sense of belonging and six that focus on their perception of support, help and acceptance from adults and peers at school. Students respond using a 3-point Likert scale (1= no not true, 2 = not sure, 3 = yes). The Belonging Scale has been validated with students aged 8 to 11 years and has a Cronbach’s alpha of 0.79, within the range of values ($\alpha = 0.77 - 0.88$) commonly reported for the 18-item Psychological Sense of School Membership (Goodenow, 1993b).

Students also completed four scales developed by the research team, entitled ‘In My Shoes’, ‘in the past week’, ‘involvement’ and ‘learning about the autism spectrum’, to

evaluate changes in students' interpersonal empathy, self-perceived confidence and involvement at school and understanding of autism.

In My Shoes, was a situation-based scale that presented 10 social situations that commonly occur at school. Students were required to select how they would respond to each social situation from a multiple-choice list (e.g., you are playing a game of four square with your friends. You see Johnny is sitting on his own in the playground. Do you: A: ask Johnny to come and play; B: ignore Johnny. He's not good at four square or C: leave Johnny alone. You know that he likes playing by himself). The purpose of the scale was to assess changes in a student's ability to identify pro-social behaviours that would lead to the inclusion of their peers. Multiple choice responses that involved higher level of interpersonal empathy were scored higher (e.g., 2 = ask Johnny to come and play; 0 = ignore Johnny. 1 = leave Johnny alone). Each social situation was directly related to intervention lesson content.

'In the past week' included 12-items that assessed students' self-perceived confidence in: asking for help, knowing when a peer needs help, helping a peer, encouraging a peer, inviting a peer to play, starting, or joining in conversation and sharing with a peer; all skills that were targeted in the intervention. Items were rated on a 4-point Likert scale (1 = not confident at all to 4 = very confident), with higher scores indicating higher levels of confidence.

The 'involvement' scale included 8-items assessing students' self-perceived involvement in classroom, school, and extracurricular activities. Items were scored on a 3-point Likert scale (1= no not true, 2= not sure, 3=yes true), with higher scores indicating higher levels of self-perceived involvement.

Finally, 'learning about the autism spectrum' included eight statements about autism that students were required to identify as true or false. This scale was administered at the beginning and end of the second lesson, to evaluate changes in students understanding of

autism. This lesson focused on increasing students understanding of autism using a documentary style video of students on the autism spectrum. All self-developed questionnaires were reviewed by a speech pathologist for language comprehension and trialled with two typically developing elementary school students.

Semi-structured interviews were conducted by the primary researcher with teachers, parents, and students on the autism spectrum pre-post intervention to verify and enrich quantitative data. Interview guides were specifically designed to gather more information about the feasibility and perceived benefits of the intervention from different participants' perspectives. For example, teachers were asked questions like 'how easy was it to implement *In My Shoes* in your classroom?', and 'do you think peers have experienced any benefits as a result of participating in *In My Shoes*? If so, can you please share some specific examples with me?'

Distal Outcome Measures

Preliminary Effectiveness. The parent-report Home & Community Social Behaviour Scale (HCSBS; Merrell & Caldarella, 2002) and the teacher-report School Social Behaviour Scale (SSBS; Merrell, 2002) were used to describe and evaluate changes in the social competence and behaviour of students on the autism spectrum in the home and school environment. The HCSBS has excellent internal consistency (social competence, $\alpha = 0.96$; antisocial behaviour, $\alpha = 0.98$) and good to excellent ($\alpha = 0.82 - 0.91$) test-retest reliability (Merrell & Caldarella, 2002). The SSBS has excellent internal consistency (social competence, $\alpha = 0.91$; antisocial behaviour $\alpha = 0.98$) and acceptable ($\alpha = 0.68 - 0.80$) test-retest reliability (Merrell, 2002). A maximum of five parents of typically developing students from each classroom were asked to complete the HCSBS for their child, to evaluate differences and changes in samples pre-post intervention.

Data Analysis

Data were analysed using the Statistical Package for the Social Sciences (SPSS Version 27) software. Descriptive statistics were used to summarise the profiles of participants. Non-parametric Wilcoxon signed-rank and Mann-Whitney U independent samples tests were used to compare data pre-post intervention. To determine inter-rater reliability of the BASC – SOS; MedCal (Version 19.6.1) was used to conduct a weighted kappa for Part A and SPSS was used to calculate an intra-class correlation coefficient for Part B. Hierarchical linear modelling (HLM) was attempted with ESM data to explore casual links between the intervention and students subjective school experiences. Given that semi-structured interviews were designed to gather specific information about the intervention's feasibility and effectiveness; interviews were analysed using content analysis and data were grouped into subheadings relating to key areas of focus for feasibility studies as outlined by Bowen and colleagues (2009). Credibility was improved through researcher triangulation, peer debriefing and member checking to test findings and interpretations with participants (Bryman, 2016). Transferability was met through the provision of detailed descriptions of participants and of results (Nowell et al., 2017; Padgett, 2008). Dependability was enhanced through use of an audit trail, field notes and reflexive journal (Lysak et al., 2006) and confirmability through a description of the methodology used to analyse, organise, describe and report on themes within the data (Bryman, 2016; Curtin & Fossey, 2007; Fossey et al., 2002; Liamputtong, 2013; Nowell et al., 2017).

Results

Feasibility

Recruitment Capability and Sample Characteristics. *Descriptive Characteristics of Students on the Autism Spectrum.* Ten students on the autism spectrum aged between 8 and 10 years participated the study. Most students had at least one sibling and 90% of

students were male and the only child in their family with a diagnosed disability. Ninety percent of students had an additional diagnosis with anxiety and Attention Deficit Hyperactivity Disorder (ADHD) being reported in more than 50% of the sample. Half of students changed schools at least once due to parent reports of inadequate support or bullying at their previous school. All student participants were on an Individual Education Plan and had access to an Education Assistant. All students accessed services outside of school including occupational therapy, speech therapy and psychology. All students had at least a grade 1 reading level so were able to comprehend survey items (see Table 15).

Table 15*Characteristics of Students on the Autism Spectrum*

Student characteristics	Mean	SD	Range	Percentile
Child age (years)	8.80	0.63	8-10	-
WRMT-III				
Word comprehension (grade)	3.59	1.01	1.9-5.5	-
Passage comprehension (grade)	2.50	0.87	1.6-4.3	-
CCC-2				
Speech	6.90	4.04	0-12	22
Syntax	6.30	3.47	1-12	15
Semantics	5.30	2.91	1-11	6
Coherence	4.60	3.17	2-13	8
Inappropriate initiation	5.50	2.01	3-9	10
Stereotyped language	4.10	1.60	2-7	3
Use of context	3.10	1.79	0-7	1
Nonverbal communication	2.90	1.73	1-7	1
Social relations	2.90	2.77	0-9	2
Interests	4.10	1.20	2-6	1
General communication composite	38.70	15.38	22-75	3
Social interaction deviance composite	-7.70	10.81	-28-6	

Note. CCC-2 Children's Communication Checklist 2nd edition; WRMT-III, Woodcock Reading Master Test (required Grade 1 reading level)

Descriptive Characteristics of Participating Teachers and Schools. Eight teachers represented six mainstream independent co-educational elementary schools in the Perth metropolitan area. Four of the teachers had more than 10 years teaching experience, with only one teacher newly graduated. All teachers had experience teaching students on the autism spectrum and most teachers had experience working in other grade levels (70%) and schooling sectors (50%). The average SEIFA decile was 9.3 (SD: 1.06; range: 7 – 10). A high

SEIFA decile reflects a relative lack of disadvantage rather than relative advantage; for example, few households with low incomes, few people with no qualifications or in low skilled occupations (Australian Bureau of Statistics, 2013). As shown in Table 16, most schools came from higher decile regions of WA and were large in student size. Only one teacher taught in a classroom with less than 25 students. Five out of eight teachers reported moderate to high levels of teaching self-efficacy.

Table 16

Characteristics of Teachers and Schools

Teacher and school characteristics	Frequency (%)
Mean school SES	
1 – 6 (lower decile range)	0 (0)
7 – 8 (mid decile range)	2 (33.3)
9 – 10 (upper decile range)	4 (66.7)
School size based on total number of students	
Small (<375 students)	1 (16.7)
Mid-range (375-975 students)	1 (16.7)
Large (>975 students)	4 (66.7)
Classroom size	
Small (<25 students)	1 (12.5)
Mid-range (25 – 30 students)	5 (62.5)
Large (>31 students)	2 (25.0)
Self-efficacy in teaching	
Low quartile	2 (28.6)
Middle half	3 (42.9)
High quartile	2 (28.6)

Examining recruitment capability and resulting sample characteristics was important in determining whether *In My Shoes* was relevant to study participants and if future efficacy

studies would be successful (Orsmond & Cohn, 2015b). Students on the autism spectrum appeared to have characteristics that were consistent with what was reported literature as students who would be appropriate for the intervention. While the recruitment process was time consuming, we were able to recruit an adequate sample for the purposes of the feasibility study. Several schools expressed interest in participating, however, parents of students on the autism spectrum declined to participate mostly because their child was not aware of their diagnosis. Schools that declined to participate in the study attributed this to not meeting eligibility criteria, lack of time and resources, and pressure in meeting curriculum requirements due to COVID-19 school closures in the previous term.

Data Collection Procedures and Outcome Measures. Teachers reported several challenges relating to the collection of data during the feasibility study. Data were collected in the first and final week of term, which are often the busiest, most unstructured weeks of term which can be highly charged with emotion for students. Teachers felt students may have experienced fatigue, altered their responses due to the teacher's presence, and were concerned students' responses may have varied depending on the time of day. Maria (teacher) said,

It would depend on the kind of day they are having, and this can change so quickly...even the time of day you do it, they might have had a fight with mum before they got out of the car. You never know with kids. You could literally do the same thing on two different days and they get totally different answers.

The timing of data collection during this study may have impacted results and emphasises the importance of strategic timing of data collection when conducting research in schools. Authors suggest future pilot studies consider collecting data mid-term to mid-term to minimize the impact of these contextual factors on study findings.

Overall, ESM proved a useful tool in capturing students' in-the-moment lived experiences at school. Students on the autism spectrum reported that they found it easy to use

the ESM device and complete the surveys. Most students reported enjoying the responsibility of having the device and responding to ESM surveys. Only one student reported that she did not like the attention the device brought to her in the classroom. The primary researcher supported this student and school to implement strategies to minimise student anxiety. Students' response rate to ESM surveys was relatively stable over time, reducing slightly from an average of 75.5% at pre-intervention to 72.8% post-intervention. Some participants reported that their device did not prompt consistently every day, which may have impacted response rate. The primary researcher supported these students and schools to troubleshoot technical issues and substituted these survey instances with paper-based surveys to maximise response rates.

Appropriateness. Overall, the intervention was well received with most teachers, school leadership staff, and parents reporting *In My Shoes* was a positive experience and that it was relevant, important, and beneficial to students on the autism spectrum and their peers (see SI Table 2). Given the intervention only targeted students in grade 3 and 4 and ran over a term, it is a positive outcome for the feasibility of the intervention, that 25% of school leadership reported the intervention made sustainable changes to the whole-school and half of teachers thought it increased the participation of students on the autism spectrum. Most teachers (87.5%), school leadership (100%) and parents (90%) reported they would recommend the intervention to another teacher or school. Students' feedback was overwhelmingly positive with more than 80% of students reporting they enjoyed participating in *In My Shoes* and that it was fun, interesting, made sense to them, and that they learnt something new (see SI Table 3). Qualitative comments from 200 student feedback surveys highlighted a preference for 'hands on' activities such as role play; suggested minimising time spent sitting on the mat engaging in whole-class discussion, and completing surveys related to data collection.

Qualitative data revealed that the intervention has several strengths. Teachers reported experiencing several benefits including improved understanding of autism, ways to support students in the classroom, and their ability to reflect on their teaching and practice. Amanda said,

To be honest there is only so much you can learn at university, your lessons were able to sort of break it all down for me – like how to support someone who has autism or someone who struggles with change – just to know some more strategies for myself has been very helpful.

Teachers valued the ‘ready-to-go’ nature of intervention resources including a detailed interactive PDF manual, online professional learning, and video resources. Teachers reported students engaged particularly well with lessons that involved role play and video modelling, benefited from access to the power-point resources as an additional visual support, and related well to the diversity of characters presented in lesson plans. These findings were supported in student interviews; students added by suggesting researchers incorporate more technology into lesson plans using game-based learning platforms (e.g., Kahoot) and iPads to complete worksheets to maximise student engagement.

Overwhelmingly, a significant benefit of the program has been increased peer understanding and acceptance of autism, according to parents and teachers. Teachers reported specific examples of instances where post intervention students had recognised when a peer (with or without autism) needed help and actively supported peers in the classroom or playground. For example, Lachlan (teacher) said,

She's had meltdowns in the past and the kids sort of just stared. They did not know what to do. They were worried. Whereas now if she starts blocking her ears, there's been a few occasions where they've come to me and said I think Jessica needs a break. That is straight from the program. She benefits because the kids know how to better

help her...the kids have benefit because they have a better knowledge and understanding and so do I.

Jess (teacher) described an incident at lunch where a student on the autism spectrum was standing on their own and the peers approached the student and asked him if he wanted to join in, saying “I don't know if that would have happened without the program to be honest”.

Implementation and Practicality. Teachers reported some 45-minute lesson plans took longer than expected to deliver (mean: 65 minutes; range: 30 – 90 minutes). Jessica said, “The biggest issue is just, it's time. By the time we do protective behaviours and everything else, it is finding the time. Some of the lessons were spot on, some of them were too long.” Teachers acknowledged, however, time management is highly dependent on teachers’ skills and experience. Teachers suggested condensing content to enable teachers to deliver the lesson within a 45-minute time frame, simplifying worksheets and, in some cases, substituting worksheets movement-based activities to maximise student engagement.

Teachers reported challenges implementing the whole-school and parent component of the intervention, attributing this to a lack of time and resources, lack of priority placed on health in the curriculum, and COVID–19 restrictions. At the time of the pilot, due to COVID–19 restrictions, parents were not permitted to be onsite at schools and whole-school events were limited due to social distancing requirements. School events that had been cancelled in the previous term had been pushed forward, which limited time available for whole-school activities. Loretta said, “I think it was in the too hard basket, to be honest. COVID has had a lot to do with it and it just kind of got put on the back burner... it's not the top priority”. Most teachers recommended that to make an impact at a whole-school level, the intervention needs to target more grade levels so that there is common terminology and a shared understanding within the school.

Teachers acknowledged the importance of parent involvement but were doubtful about parent uptake even if COVID-19 was not a barrier. Toby (teacher) said,

To be fair I email parents lots of things that they do not even read. I feel like even if it was less, there is just a chunk of parents that are going to read it and there is a chunk that won't, but I think it has the potential to really get the parents involved in a very positive way.

Maria (teacher) said,

At this particular school, I honestly think health would be brushed off as something that is not the most important subject and certainly not one where parents would feel like they need to come on their workday... especially if they think my kid's not autistic so it doesn't apply to me.

Parents of students on the autism spectrum expressed frustration that information was not sent home as they felt it limited their ability to generalise their child's learning and identify whether changes in their child's behaviour were due to the intervention or other reasons. Parents expressed a desire to be informed and involved in their child's learning, but acknowledged the way in which this is implemented needs to be realistic. Jackson (parent) said,

There are some parents who are barely surviving themselves. And it is just a case of pushing the kids out the door... you can throw as much information at them but that is not going to get in because they can't even take care of themselves. And there's other people which are probably that proactive, that anything that you bring up, they have probably already considered because they like to be ahead of the curve.

Teachers suggested adapting the program to include children with other neurodiversities, such as ADHD, to make the intervention more applicable to a broader student population, which may increase parent buy in and uptake of the intervention at a

whole-school level. Parents and teachers also suggested condensing written parent information and utilising other forms of media (e.g., uploading work pieces or videos to school portal) where possible to maximise parent engagement.

Fidelity

Teachers reported a 25% improvement in confidence in implementing In My Shoes after they completed standardised online professional learning; with 87.5% of teachers reporting, they were ‘fairly confident’ or ‘very confident’ in delivering the intervention in their classroom. There was a 98.8% response rate to online fidelity surveys, which took teachers approximately 4 minutes to complete every week. Teachers reported sending parent information handouts home 74% of the time; attributing this to lack of time and school policies relating to the amount of information that can be sent to parents. Teachers reported conducting activities in the lesson plan as specified in the manual 90% of the time and that students were actively engaged in lessons more than 95% of the time. The primary researcher observed at least one lesson in every classroom, either in person or via video recording. Teachers were observed to deliver lesson plans as specified in the manual on average 90.9% of the time (range: 77.8 – 100%).

Only fifty percent of parents reported reading parent information handouts, with the remaining parents reporting that they did not receive information from their school. The majority of school leadership staff reported their school did not implement whole-school activity ideas due to lack of time and resources and COVID–19 restrictions.

Preliminary Effectiveness

Changes in the Classroom Participation of Students on the Autism Spectrum Reported on the BASC 3 – SOS. There was a positive trend in student behaviour in the classroom including increased peer interactions and responsivity to their teacher and fewer inattentive behaviours (see Table 17 and 18). Qualitatively, there were more reports of peers

prompting students on the autism spectrum (e.g., to re-engage in an activity, to locate materials, or to help complete a task) and of students appearing happier and more engaged during observations post intervention. Inter-rater reliability was deemed excellent with a weighted kappa of 1.0 (100% agreement) for Part A and an intra-class correlation coefficient greater than 0.90 for all sections in Part B (i.e., $\alpha > 0.90$ response to teacher, $\alpha = 0.992$; peer interaction, $\alpha = 0.997$; work on school subjects, $\alpha = 0.996$; transition, $\alpha = 0.998$; inappropriate interactions, $\alpha = 0.963$; inattention, $\alpha = 0.994$; inappropriate vocalisations $\alpha = 0.999$).

Table 17

Difference in BASC 3 – SOS Part A Observations Pre-Post Intervention for Students on the Autism Spectrum

Item	Pre (Median, IQR)	Post (Median, IQR)	P value
Response to teacher			
Listening to teacher/ classmate or following directions	3 (0)	3 (0)	0.771
Interacting with teacher in class/ group	2 (1)	2 (2)	0.336
Working with teacher one on one	1 (1)	1 (1)	0.588
Standing at teacher's desk	1 (0)	1 (0)	1.000
Peer interaction			
Playing/working with other students	1 (1)	2 (2)	0.065
Talking with other students	1 (1)	2 (1)	0.009*
Touching another student appropriately	1(0)	1 (1)	0.194
Working on school subjects			
Doing seat work	3 (2)	3 (2)	0.857
Working at a computer or workstation	1 (0)	1 (0)	0.607
Other	3 (1)	3 (0)	1.000
Transition movement			
Putting on/taking off coat	1 (0)	1 (0)	1.000
Moving around room (appropriately)	2 (1)	1 (0)	0.513

Item	Pre (Median, IQR)	Post (Median, IQR)	P value
Preparing materials for beginning/end of lesson	2 (1)	2 (0)	0.204
Being out of the room	1 (0)	1 (0)	0.792
Inappropriate interactions			
Preventing others from working	1 (0)	1 (0)	0.607
Ignoring appropriate requests from others	1 (0)	1 (0)	0.667
Distracting others by intruding into others personal space	1 (0)	1 (0)	0.607
Distracting others by touching (nonsexual)	1 (0)	1 (0)	0.607
Distracting others by making noise	1 (0)	1 (0)	0.989
Distracting others by moving around	1 (0)	1 (0)	-
Inappropriate movement			
Fidgeting in seat	2 (1)	1 (2)	0.057
Walking around classroom	1 (0)	1 (0)	0.461
Using electronic device	1 (0)	1 (0)	1.000
Being removed from the classroom	1 (0)	1 (0)	1.000
Using work materials inappropriately	1 (0)	1 (1)	0.627
Passing notes	1 (1)	1 (0)	1.000
Copying answers	1 (0)	1 (0)	0.792
Jumping out of seat	1 (0)	1 (0)	0.728
Running around classroom	1 (0)	1 (0)	1.000
Sitting/standing beside desk	1 (0)	1 (0)	0.967
Sitting/standing on desk	1 (0)	1 (0)	0.792
Clinging to teacher	1 (0)	1 (0)	1.000
Inattention			
Staring blankly/ daydreaming	3 (1)	2 (1)	0.070
Doodling	1 (0)	1 (0)	0.588
Looking around	3 (1)	2 (0)	0.013*
Looking at hands	1 (2)	1 (0)	0.095
Fiddling with objects/ fingers	3 (1)	1 (2)	0.008*

Item	Pre (Median, IQR)	Post (Median, IQR)	P value
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Note. BASC 3 – SOS – Behaviour Assessment System for Children Student Observation System 3rd edition; * $p < 0.05$; Part A – ordinal scale; 1= not observed; 2= sometimes observed; 3= frequently observed; inappropriate vocalisations, somatisation, repetitive motor movements, aggression, self-injurious behaviours, inappropriate sexual behaviour and bowel/bladder problems were not observed and therefore not included in Part A data;

Table 18

Difference in BASC 3 – SOS Part B Observations Pre-Post Intervention for Students on the Autism Spectrum.

Item	Pre Mean (SD)	Post Mean (SD)	Z score	P value
Response to teacher	3.200 (2.275)	3.650 (2.981)	-0.119	0.906
Peer interaction	2.450 (3.201)	4.450 (4.693)	-1.807	0.071
Work on school subjects	17.150 (5.53)	16.200 (8.131)	-0.153	0.878
Transition movement	2.250 (1.961)	3.650 (2.698)	-1.897	0.058
Inappropriate interactions	0.050 (0.158)	0.600 (1.266)	-1.089	0.276
Inappropriate movement	1.900 (4.040)	0.100 (0.316)	-1.841	0.066
Inattention	10.950 (6.985)	5.250 (5.313)	-2.077	0.038*
Inappropriate vocalisations	0.100 (0.316)	0.050 (0.158)	-0.447	0.655
Other	0.500 (1.414)	1.300 (2.123)	-1.625	0.104

Note. BASC 3 – SOS: Behaviour Assessment System for Children Student Observation System 3rd edition; * $p < 0.05$; Part B: continuous scale reporting observed counts of behaviour; somatisation, repetitive motor movements, aggression, self-injurious behaviours, inappropriate sexual behaviour and bowel/bladder problems were not observed in the sample and therefore not included in Part B data.

Changes in the Subjective School Experiences of Students on the Autism

Spectrum Reported Using ESM. There was a statistically significant reduction in students on the autism spectrum reporting difficulties in the classroom post intervention. Several ESM findings trended in a positive direction but did not reach significance. For example, students reported higher levels of enjoyment; needing less help; being with classmates more; finding classwork less difficult; being more interested in classwork; and feeling more sociable and excited when in the classroom post intervention. When students reported that they needed help, classmates helped them more post intervention. Students also reported feeling increased enjoyment and interest and feeling more sociable when with their teacher and reported feeling happier when listening to their teacher post intervention, but the change was not statistically significant.

Some results relating to students' emotions were inconsistent. Although students reported feeling more interested in classwork, they also reported feeling more worried when participating in classwork post intervention. Students also reported increased enjoyment when with their classmates', but at the same time reported feeling angrier when with their classmates' post intervention. Refer to SI Table 4 and SI Table 5 for differences in ESM data pre-post intervention.

Benefits to students on the autism spectrum were reported in interviews. Parents and teachers reported increased: student self-awareness of their diagnosis and differences; feelings of self-confidence and empowerment; peer connections and sense of belonging. There were also reports of less friendship challenges and improved social (e.g., ability to join in a game and work in groups) and self-regulation skills. One of the teachers, Maria said,

He seems more confident in himself and the fact that people weren't thinking that because he couldn't do stuff or that he got upset easily was because there was something

wrong with him... the fact that the whole class had an understanding of [autism] and were openly talking about it and accepting of it, made him feel more confident.

Amanda (parent) said, “Its boosted his confidence... it has really made him feel more accepted and that it's okay to be a bit different”. These notions were supported in interviews with some students on the autism spectrum reporting an increased sense of confidence and feelings of empowerment when sharing their experience of autism with their peers. Some students also reported that they had formed new friendships and that their peers seemed “a little nicer” in that they would play with them more in the classroom and playground post intervention. In some instances, teachers and parents reported increased student participation in the classroom and other school related activities such as assemblies and extra-curricular sport.

Changes in Students Self-Report School Engagement and Belonging Across the Sample. Students across the sample reported statistically significant higher levels of engagement and intrinsic motivation at school post intervention. Students also reported improved peer support while learning, but this was not found to be statistically significant. SEI-E scores at or below the 10th percentile are most significant indicators of low student engagement. Pre-intervention, students who scored 89 or lower were deemed at risk of low engagement. Post intervention, students who scored 93 or lower were deemed at risk of low engagement. The increase in the cut off for the 10th percentile from 89 to 93 (4.49%) indicates there was an improvement in the average engagement of students participating in the program post intervention. When analysing students on the autism spectrum data in isolation, no statistically significant differences were found in students self-report school engagement and belonging; with scores for SEI-E and Belonging measures staying the same or reducing slightly (see SI Table 6).

A statistically significant improvement in students' responses to the In My Shoes situation-based scale was noted, which indicates an improvement in students understanding of intervention content; selecting responses that demonstrate behaviour that would lead to the inclusion of their peers in various social situations. Students' confidence in asking for help and helping others in the classroom and playground reduced slightly post intervention. No change was reported in students' self-perceived school involvement. A statistically significant improvement in students' understanding of autism was reported following the second lesson of the intervention. Refer to Table 19 for differences in HCSBS, SEI-E, Belonging, and self-developed scales pre-post intervention across the sample.

Table 19

Difference in HCSBS, SEI-E, Belonging, In My Shoes Scales Pre-Post Intervention Across Whole Sample

Measures	Pre Mean (SD)	Post Mean (SD)	Z score	P value
HCSBS				
Peer relations	64.70 (14.09)	65.37 (13.83)	1.178	0.239
Self-management/ compliance	54.15 (11.94)	56.96 (10.84)	2.361	0.018*
Social competence total	118.85 (25.03)	122.3 (23.66)	1.750	0.080
Defiant/ disruptive	33.36 (12.38)	29.96 (10.25)	2.429	0.015*
Antisocial/ aggressive	27.15 (10.26)	25.74 (8.64)	1.200	0.230
Antisocial behaviour total	60.52 (21.89)	55.04 (17.96)	2.320	0.020*
SEI-E				
Teacher student relationship	36.21 (5.91)	36.55 (6.50)	0.256	0.798
Peer support for learning	23.62 (4.19)	24.05 (4.20)	0.526	0.599
Family support for learning	17.75 (2.39)	17.70 (2.62)	0.145	0.884
Future goals and aspirations	20.70 (3.73)	21.020 (3.43)	1.143	0.253
Intrinsic motivation	6.74 (3.19)	8.790 (2.03)	6.822	0.001***
Behavioural engagement	9.14 (2.36)	9.23 (2.20)	0.181	0.856
Disaffection	8.89 (2.96)	8.95 (2.69)	0.700	0.484
SEI-E total	105.01 (13.84)	108.10 (13.62)	3.317	0.001***
Belonging Scale	30.13 (4.14)	30.02 (4.61)	0.289	0.773
In My Shoes				
Situation based	15.65 (2.09)	16.06 (2.05)	3.212	0.001***
In the past week	37.01 (5.97)	36.24 (5.81)	2.634	0.008**
Involvement	20.09 (3.65)	20.31 (2.89)	0.235	0.814
Learning about the autism spectrum	7.21 (1.25)	7.51 (1.16)	3.492	0.001***

Measures	Pre	Post	Z	P value
	Mean (SD)	Mean (SD)	score	

Note. HCSBS, Home Community Social Behaviour Scale; SEI-E, Student Engagement Instrument – Elementary Version; * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

No statistically significant differences were found between students on the autism spectrum and typically developing peers post intervention across all measures. SEI-E total scores declined for students on the autism spectrum but improved for peers. While differences between students on the autism spectrum and peers SEI-E scores did not reach significance, scores for both samples moved in a positive direction for most subscales. Refer to SI Table 7 for differences between samples in HCSBS, SEI-E, Belonging and self-developed scales post intervention.

Changes in Social Skills and Behaviour in the Home, Community and School Environment Reported Using HCSBS and SSBS. Parents of students on the autism spectrum and typically developing peers reported an improvement in their child's self-management and compliance and reported less defiant/disruptive and anti-social behaviour on the HCSBS post intervention. No statistically significant changes were reported in the social skills of students on the autism spectrum on the SSBS by teachers post intervention.

Discussion

The importance of school connectedness for students social, emotional, and academic development is undisputed (Shochet et al., 2006). Limited school-based interventions exist that specifically aim to increase elementary school students' sense of connection to school (Allen et al., 2016; Centers for Disease Control and Prevention, 2009). This study focused on evaluating the feasibility, fidelity and preliminary effectiveness of a novel school-based intervention entitled *In My Shoes* that aims to improve the school participation and feelings of connectedness of students on the autism spectrum. Findings from this study are encouraging,

suggesting *In My Shoes* is a feasible intervention and shows promise in improving self-report school engagement of all student participants, as well the classroom participation and subjective school experiences of students on the autism spectrum.

Feasibility

Recruitment Capability and Sample Characteristics. The recruitment process for this study was time consuming and eligibility criteria were restrictive. The primary researcher was required to contact school principals in the first instance to determine interest, eligibility and to gain written informed consent. Due to school principals' limited availability, this resulted in several phone calls and emails before the primary researcher was able to communicate with students on the autism spectrum, their parents and teachers and prepare for data collection. The fact that we received several enquiries about our study from schools with students experiencing school participation restrictions, without a formal diagnosis of autism, indicates the need for an intervention that focuses on improving students' school participation and feelings of connectedness. Although we were able to recruit sufficient participants for this study, we anticipate challenges recruiting large numbers of schools in future studies without broadening eligibility criteria to include students with social challenges without formal diagnosis of autism. This, however, needs to be considered carefully, as broadening eligibility may impact scientific rigor as we will not be able to differentiate intervention effects for different student populations.

Data Collection Procedures and Outcome Measures. We received consistent feedback from students and teachers that the timing and quantity of outcome measures were burdensome. Selecting outcome measures in intervention research is challenging (Coster, 2013). Several outcome measures are used in feasibility studies to identify the most appropriate measure to use in future efficacy studies (Bowen et al., 2009). Striking the balance between thorough data collection procedures and feasibility can be particularly

challenging in busy school environments. We selected measures that addressed constructs of interest and that had been validated with elementary school students. The measures available, however, had limited psychometric evaluations which may have impacted findings. As we move forward, we may need to develop new measures that align with the theoretical perspectives and hypothesised mechanisms of change reflected in the intervention (Coster, 2013; Orsmond & Cohn, 2015b).

Several objective changes were observed in classroom participation of students on the autism spectrum post intervention. Students were observed to display more on task behaviour and interacted more with peers post intervention; a proximal intervention outcome, specifically targeted in the *In My Shoes* intervention. In ESM surveys, students reported that when they needed help and classmates helped them more post intervention. This is an important finding, as it suggests peers have an improved ability to demonstrate pro-social behaviour; an intended outcome of the intervention. Social skills, however, such as the ability to adjust to different behavioural expectations explored using the teacher-report SSBS, were not overtly targeted in the intervention and did not change post intervention. The SSBS was recommended in a recent systematic review evaluating the psychometric properties of social skills measures (Cordier et al., 2015). This distal outcome measure was important to include in this study as it served an important function in determining if intervention effects transcended immediate intervention targets. These findings suggest that for this intervention and sample size, there were no effects in relation to distal outcomes.

Several factors may have contributed to lack of significant change in the self-report school engagement of students on the autism spectrum. For example, students may have misinterpreted survey items or may have experienced difficulty understanding and applying key concepts of the program specifically relating to perspective taking. While interventions that adopt whole-class approaches have their advantages (Minniss & Stewart, 2009), students

on the autism spectrum may benefit from additional individualised support throughout the duration of the intervention to specifically apply concepts and practice skills with peers to support change in intervention outcomes over time. This adaptation, however, would need to be tested to evaluate if it is feasible in the school environment.

Some interesting findings arose from ESM data. For example, students reported feeling more interested in classwork, but also reported feeling more worried when participating in classwork post intervention. This may suggest that students care more about their classwork and therefore feel more worried about their performance in the classroom post intervention. Several inconsistencies, however, were noted in data relating to students' emotions from ESM surveys. For example, students reported increased enjoyment when with their classmates', but at the same time reported feeling angrier when with their classmates post intervention. Although students had appropriate reading comprehension and were provided with training in the use of the ESM survey, inconsistencies suggest more training is needed to support students to interpret emotion-specific items.

Appropriateness, Implementation, and Practicality. The components of the intervention that were most valued was the whole-class program. Teachers valued detailed lesson plans and interactive pre-prepared resources. The whole-school and parent component of the intervention, that were less prescriptive and provided schools with flexibility in the way they were delivered, were less valued and therefore not implemented as stated in the manual. This raises important questions about how to best support learning between the classroom and school and between school and home.

All schools and teachers felt that to make a difference at a school level, the intervention needed to be embedded across the school; tailored to as many grade levels as possible. This would help to develop a shared set of values within the school about how students should respond to and support each other and equip schools with the tools they need

to facilitate these behaviour transactions. These findings are consistent with school connectedness literature that suggest whole-school approaches targeting school organisational environments are effective in promoting a sense of belonging (Carrington et al., 2020; Minniss & Stewart, 2009). It is not reasonable to expect systemic change if content is only delivered to a small number of students. Future research should aim to expand *In My Shoes* across grade levels and provide additional resources to support schools to implement whole-school activity ideas. Additional emphasis should also be placed in pre-intervention professional learning on the importance of whole-school and parent involvement so that teachers understand the potential impact this could have on intervention outcomes and therefore be more invested in delivering these intervention components. Identifying school leadership staff who will be accountable for implementing whole-school activity ideas from the outset would also help to improve the fidelity of this intervention component.

Parents oscillated between wanting to be provided with information and not wanting to be provided with too much information. COVID–19 social distancing restrictions made parent engagement particularly challenging in this study, highlighting how quickly the disconnect between home and school can occur and the amount of effort required in building relationships and sharing knowledge between school and home. Innovative ways to maximise parent engagement, such as presenting written information in functional formats (e.g., condensing weekly information handouts to present key concepts on an A4 sized fridge magnet) and using videos on school portals to demonstrate student learning, should be incorporated in the future.

Preliminary Effectiveness

Despite the small sample size, statistically significant positive change in intervention outcomes were noted across the sample including improved student self-report engagement, intrinsic motivation and understanding of autism. Students' perception of peer support also

improved, but this did not reach significance. These findings are encouraging as they show a positive trend in key constructs (e.g., feelings of acceptance, inclusion and belonging, and perceptions of the quality of teacher and peer relationships and support) that contribute towards students' sense of school connectedness (Hodges et al., 2018; McNeely et al., 2002). Statistically significant changes were noted in the classroom participation of students on the autism spectrum (i.e., increased peer interactions, fewer inattentive behaviours) post intervention. While there was limited significant change across the BASC – 3 SOS, some items within the domains of 'inappropriate movement' (e.g., fidgeting) and 'transition movement' (e.g., moving around classroom appropriately) were trending in a positive direction and approaching significance, suggesting these items require further exploration in future studies. These findings indicate the intervention has the potential to buffer the long-term documented implications of reduced school connectedness on student outcomes.

While there were some changes to the classroom participation and subjective experiences of students on the autism spectrum, benefits to peers were significant and exceeded expectations. Statistically significant changes were noted in students' self-report engagement and motivation at school post intervention, which was not found when analysing data of students on the autism spectrum in isolation. Unlike some interventions, *In My Shoes* focuses on making change at an environmental level; using a whole-class program to teach peers to recognize and respond when a student may be having difficulty in the classroom and playground. In raising peers awareness and understanding of autism, we can create a more inclusive and supportive classroom environment that fosters participation. Involving peers in school-based interventions and using a top-down approach, focusing holistically on student participation rather than developing a particular set of skills in isolation, is imperative to effect changes in the school experiences of students on the autism spectrum.

Future Research

While it may appear conducting separate feasibility studies prior to launching a randomised controlled trial (RCT) will prolong the research process, a carefully constructed sequence of preliminary studies will ultimately accelerate the development of more effective school-based interventions (Orsmond & Cohn, 2015). A number of recommendations for future research can be made based on the current study. Firstly, the existing *In My Shoes* intervention should be adapted based on feedback received from parents, teachers, and students (e.g., simplify worksheets; incorporate more technology into lesson plans; condense parent information handouts; expand content to include more grade levels) and then tested in a larger number of schools. If this shows promising results, an RCT may be suitable to further test the interventions effectiveness (Campbell et al., 2007).

Separate studies could then broaden *In My Shoes* eligibility criteria to include other student populations such as students with social challenges without a formal diagnosis of autism and other neuro-diversities such as ADHD. The intervention would need to be adapted based on literature to ensure the intervention is appropriate for these student populations and tested for feasibility and effectiveness in small samples before larger studies are conducted.

Striking a balance between data collection procedures that are thorough but also feasible should be a priority in future studies by reducing the number of paper-based outcome measures and focusing on capturing changes in proximal rather than distal intervention outcomes over time. Measuring outcomes mid-term to mid-term may also help to reduce burden for teachers in the first and final week of term; minimising the impact contextual factors may have on study findings. Future studies involving ESM should provide more in-depth training; supporting students to practice responding to items relating to emotions using real life examples through role play and provide students with the opportunity to practice using the device a few days before data collection starts. Emotion-specific items should also

be adapted to use a dichotomous rather than continuous scale and be context and activity specific, rather than asking students to reflect on their emotions more generally.

Limitations

Conducting research in schools is complex and multifaceted. There are many factors that impact on the delivery of school-based interventions and the collection of data, which can ultimately impact the success of school-based interventions. This is often why intervention research is not commonly conducted in schools and why there continues to be a paucity of interventions that aim to support students' participation and sense of belonging at school (Allen et al., 2016; Centers for Disease Control and Prevention, 2009).

Some limitations of the present study must be acknowledged. Only a small sample of students on the autism spectrum across schools participated, which limited the power of the study. The reading comprehension of typically developing students in participating classrooms was not assessed, which may have limited reliability of responses to survey items. HLM was attempted with ESM data; however, the sample size was too small to yield meaningful results. Schools that did participate did so voluntarily and therefore inherently may have had a more positive school culture relating to the inclusion of students with additional needs which may have biased results. Practical issues relating to the mEMA app and the electronic platform should also be considered. Several survey instances were missing due to the mEMA app failing to prompt, students not hearing the prompt and/or forgetting to keep the device on them while at school. Further support and training are required to minimise the impact of technical issues on data collection.

Conclusions

The feasibility, fidelity, and preliminary effectiveness of a novel school-based intervention entitled *In My Shoes* was evaluated in this study. Teachers valued the whole-class component of the intervention, including its detailed lesson plans and pre-prepared interactive

resources. This intervention component was delivered as stated in the manual; however, teachers and schools found the parent and whole-school component of the intervention more challenging to implement due to lack of time and resources and COVID–19 restrictions. Study findings provide preliminary evidence to support the effectiveness of the intervention in improving student self-report school engagement, motivation and understanding of autism. The intervention shows promise for students on the autism spectrum, improving peer interactions and teacher responsivity, reducing inattentive behaviours and reported difficulties in the classroom. Useful insights into ways the intervention and the design of future research can be improved are discussed.

Author Note

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Author Contributions

All authors contributed to the study conception and design. Material preparation, data collection and analysis were performed by Amy Hodges under the supervision of Reinie Cordier, Annette Joosten and Ryan Chen. The first draft of the manuscript was written by Amy Hodges and all authors commented on previous versions of the manuscript. All authors read and approved the final manuscript.

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Supporting Information

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SI Table 1*Intervention Fidelity Protocol.*

Theoretical element	Operational element in the In My Shoes pilot
Study design	<ul style="list-style-type: none"> • Intervention is manualised with detailed lesson plans and resources. • Recommended that more than one staff member at each school complete professional learning and familiarise themselves with the In My Shoes program in case of teacher absence. • Recommended dosage (i.e., at least 45 minutes per week over 10 weeks). • Researcher observed delivery of intervention across schools through observation or via video-taped observations.
Training providers	<ul style="list-style-type: none"> • Standardised online professional learning video presentations • Pre and post professional learning questionnaires to evaluate teacher confidence in delivering In My Shoes program. • Face to face meeting with implementing teacher and supporting leadership staff to provide opportunity to clarify content of professional learning, answer questions and discuss application of intervention to their classroom.
Delivery of treatment	<ul style="list-style-type: none"> • Researcher plans to observe delivery of program across schools through observation or via video-taped observations • Weekly online teacher report fidelity checklist via Qualtrics • Weekly/ fortnightly phone or email check-ins and reminders for teachers to answer questions or provide support
Receipt of treatment	<ul style="list-style-type: none"> • In My Shoes situation-based questionnaire to evaluate changes in understanding of content of program • Qualitative evaluation of participant experiences via semi-structured interviews.
Enactment of treatment skills	<ul style="list-style-type: none"> • Battery of pre-post outcome measures • Qualitative evaluation of participant experiences via semi-structured interviews.

SI Table 2

Teacher, School Leadership and Parent Responses to Anonymous Post Intervention Feedback Survey.

Question	Response (%)				
	SD	D	N	A	SA
Teachers (n=8)					
In My Shoes was a positive experience for me	0	0	12.5	62.5	25
In My Shoes was a positive experience for my classroom	0	0	0	75	25
The content of <i>In My Shoes</i> was relevant in supporting the school participation of students with ASD in my classroom	0	0	0	87.5	12.5
The content of In My Shoes was relevant in supporting the school connectedness of students with ASD in my classroom	0	0	25	50	25
The content of <i>In My Shoes</i> was important in supporting the school participation of students with ASD in my classroom	0	0	12.5	62.5	25
The content of In My Shoes was important in supporting the school connectedness of students with ASD in my classroom	0	0	12.5	75	12.5
The outcomes of In My Shoes were beneficial to students with ASD in my classroom	0	0	0	62.5	37.5
The outcomes of In My Shoes were beneficial to peers of students with ASD in my classroom	0	0	0	50	50
The outcomes of In My Shoes were beneficial to my school as a whole	0	0	62.5	37.5	0
<i>In My Shoes</i> has made sustainable change to the school participation of students with ASD in my classroom	0	12.5	37.5	50	0

Question	Response (%)				
	SD	D	N	A	SA
In My Shoes has made sustainable change to the school connectedness of students with ASD in my classroom	0	12.5	25	62.5	0
I would recommend <i>In My Shoes</i> to other schools and/or teachers	0	0	12.5	50	37.5
School Leadership (e.g., Deputy Principal, Learning Support Coordinator) (n=4)					
<i>In My Shoes</i> was a positive experience for my school	0	0	0	50	50
The content of <i>In My Shoes</i> was relevant in supporting the school participation of students with ASD in the participating classroom	0	0	0	50	50
The content of <i>In My Shoes</i> was relevant in supporting the school connectedness of students with ASD in the participating classroom	0	0	0	50	50
The content of <i>In My Shoes</i> was important in supporting the school participation of students with ASD in the participating classroom.	0	0%	0	100	0
The content of <i>In My Shoes</i> was important in supporting the school connectedness of students with ASD in the participating classroom.	0	0	0	50	50
The outcomes of In My Shoes were beneficial to students with ASD in the participating classroom	0	0	0	75	25
The outcomes of In My Shoes were beneficial to peers in the participating classroom	0	0	0	25	75
The outcomes of <i>In My Shoes</i> were beneficial to teachers in the participating classroom/s	0	0	0	50	50
The outcomes of In My Shoes were beneficial to my school as a whole	0	0	75	0	25
In My Shoes has made sustainable change to the school participation of students with ASD in the participating classroom	0	0	50	50	0

Question	Response (%)				
	SD	D	N	A	SA
In My Shoes has made sustainable change to the school connectedness of students with ASD in the participating classroom	0	0	25	50	25
I would recommend In My Shoes to other schools	0	0	0	25	75
Parents (n=10)					
<i>In My Shoes</i> was a positive experience for me and my child	0	0	30	50	20
The content of <i>In My Shoes</i> is relevant in supporting the school participation of students with ASD in mainstream schools	0	0	10	60	30
The content of In My Shoes is relevant in supporting the school connectedness of students with ASD in mainstream schools	0	0	10	60	30
The content of <i>In My Shoes</i> is important in supporting the school participation of students with ASD in mainstream schools	0	0	10	60	30
The content of In My Shoes is important in supporting the school connectedness of students with ASD in mainstream schools	0	0	10	60	30
The outcomes of <i>In My Shoes</i> were beneficial to my child	0	0	30	40	20
The parent involvement required in <i>In My Shoes</i> was manageable (e.g., reading weekly parent information handouts; trying to incorporate suggested strategies at home; attending/participating in Module 10).	0	0	50	40	10
<i>In My Shoes</i> has made sustainable change for the school participation of my child	0	0	50	40	10
In My Shoes has made sustainable change for the school connectedness of my child	0	10	0	60	30

Question	Response (%)				
	SD	D	N	A	SA
I would recommend <i>In My Shoes</i> to other parents or school	0	0	10	60	30

Notes. SD: Strongly Disagree; D: Disagree; N: Neutral; A: Agree; SA: Strongly Agree.

SI Table 3*Student Responses to Anonymous Paper-Based Post Intervention Feedback Survey*

Students (n=200) Question	Response (%)			
	SD	D	A	SA
<i>In My Shoes</i> was fun	4.5	10.5	56.0	29.0
I enjoyed <i>In My Shoes</i>	5.5	12.0	51.0	31.5
<i>In My Shoes</i> activities were interesting;	4.0	10.5	56.0	29.5
<i>In My Shoes</i> activities made sense to me;	4.0	12.5	55.0	28.5
<i>In My Shoes</i> activities were easy to do;	6.5	18.0	47.5	28.0
The lessons taught in <i>In My Shoes</i> are important;	3.0	3.5	33.0	60.5
I learnt something new from <i>In My Shoes</i> ;	4.0	12.0	38.0	46.0

Notes. SD= strongly disagree; D= disagree; A= agree; SA= strongly agree

SI Table 4*Difference in Objective ESM Data Pre-Post Intervention, ASD Sample*

		Pre Mean % of time (SD)	Post Mean % of time (SD)	Z score	P value
Where were you?	Classroom	40.10 (15.45)	43.50 (16.68)	0.663	0.507
	At home or on way to/from home/school	26.70 (9.04)	28.70 (12.32)	0.474	0.635
	Outside classroom	21.70 (13.59)	15.80 (9.41)	1.686	0.092
	Specialist subject	8.20 (13.65)	6.90 (6.15)	0.338	0.735
	Other	3.40 (4.42)	5.10 (7.40)	0.315	0.752
What was the main thing you were doing?	Listening to teacher	28.50 (18.55)	22.40 (11.19)	1.125	0.261
	Classwork – incl. homework, individual and small group work	19.40 (15.33)	18.00 (9.92)	0.415	0.678
	Leisure – incl. physical activity, ipad, gaming, resting, seeing friends and family and reading	18.30 (13.05)	18.70 (11.18)	0.306	0.759
	Transition	13.00 (17.61)	11.80 (11.95)	0.297	0.766
	Self-care – incl. eating, dressing, toileting	10.60 (8.39)	10.40 (7.84)	0.060	0.853
	Play	8.90 (10.52)	13.20 (13.87)	0.889	0.374
	Something else	1.10 (3.47)	5.80 (7.00)	2.032	0.042*
Who were you with?	Teacher	20.50 (13.06)	22.80 (15.25)	0.890	0.373
	EA	12.40 (12.77)	7.40 (10.28)	1.400	0.161
	Classmate	42.50 (9.05)	50.20 (20.91)	0.918	0.359

		Pre Mean % of time (SD)	Post Mean % of time (SD)	Z score	P value
	Family	26.80 (11.28)	26.20 (13.61)	0.051	0.959
	Alone	9.50 (14.33)	8.10 (10.84)	0.140	0.889
	Someone else – e.g., neighbour, doctor	2.40 (3.86)	6.90 (6.55)	1.628	0.103
Would you prefer to be alone?	Yes	30.90 (31.07)	33.50 (27.71)	0.415	0.678
Were you talking with someone?	Yes	39.10 (22.62)	39.10 (22.62)	0.408	0.683
	No	62.60 (24.28)	61.00 (22.58)	0.357	0.721
Who were you talking to?	Teacher	2.30 (5.12)	5.40 (6.29)	1.214	0.225
	EA	5.80 (13.89)	3.00 (5.65)	0.730	0.465
	Classmate	21.50 (14.93)	18.60 (12.03)	0.663	0.507
	Family	13.40 (12.69)	10.90 (13.73)	0.762	0.446
	Someone else	2.80 (5.11)	4.90 (6.06)	0.931	0.352
Did you need help?	Yes	17.50 (17.21)	11.20 (11.10)	1.125	0.260
Who helped you?	Teacher	15.90 (28.03)	8.30 (17.95)	1.069	0.285
	EA	23.30 (41.71)	3.30 (10.43)	1.604	0.109
	Classmate	5.00 (15.81)	8.30 (17.95)	0.272	0.785
	Family	3.30 (10.43)	36.70 (42.19)	2.032	0.042*
	Other	32.50 (44.17)	13.30 (32.18)	1.604	0.109

		Pre Mean % of time (SD)	Post Mean % of time (SD)	Z score	P value
When you were [insert activity], would you prefer to be doing another activity?	Listening to teacher/ Yes	31.70 (41.75)	58.30 (37.86)	2.213	0.027*
	Classwork/ Yes	28.30 (41.60)	37.30 (39.12)	0.962	0.336
	Play/ Yes	0.00 (0.00)	11.70 (24.98)	1.342	0.180
	Transition / Yes	25.00 (42.49)	28.30 (34.28)	0.136	0.892
	Leisure / Yes	10.00 (21.08)	22.50 (41.58)	0.921	0.357
	Self-care / Yes	30.00 (42.91)	55.00 (43.78)	1.633	0.102
	Something else / Yes	5.00 (15.81)	10.00 (31.62)	0.447	0.655
When you were talking, would you prefer to be alone?	Yes	10.80 (24.82)	17.30 (26.86)	0.730	0.465
When you needed help, who helped you?	Teacher	30.00 (48.30)	20.00 (42.16)	1.000	0.317
	EA	25.00 (42.49)	10.00 (31.62)	1.089	0.276
	Classmate	10.00 (31.62)	20.00 (42.16)	0.577	0.564
	Family	10.00 (31.62)	50.00 (52.70)	2.000	0.046*
	Other	40.00 (51.64)	20.00 (42.16)	1.414	0.157
When you were [insert activity]	Listening to the teacher	27.50 (32.38)	19.20 (32.87)	0.768	0.443
	Classwork	15.80 (32.00)	0.00 (0.00)	1.604	0.109
	Play	0.00 (0.00)	2.50 (7.90)	1.000	0.317

		Pre Mean	Post Mean	Z score	P value
		% of time (SD)	% of time (SD)		
did you need help?	Transition	2.50 (7.90)	16.70 (27.28)	1.604	0.109
	Leisure	15.00 (33.74)	5.00 (15.81)	0.816	0.414
	Selfcare	0.00 (0.00)	5.00 (15.81)	1.000	0.317
	Something else	5.00 (15.81)	0.00 (0.00)	1.000	0.317

Note. $p < 0.05$

SI Table 5*Difference in Subjective ESM Data Pre-Post Intervention, ASD Sample*

	Pre Mean (SD)	Post Mean (SD)	Z score	P value
Enjoyment	69.30 (11.70)	71.10 (12.91)	0.561	0.575
Difficulty	21.40 (11.29)	23.00 (17.16)	0.459	0.646
Interest	65.20 (11.66)	62.30 (16.41)	1.173	0.241
Importance	61.10 (19.72)	56.10 (24.97)	1.123	0.262
Help amount	60.75 (29.59)	41.14 (29.27)	1.156	0.248
Sad to happy	83.60 (15.22)	80.90 (20.41)	0.357	0.721
Worried to relaxed	86.30 (13.78)	79.60 (16.77)	1.378	0.168
Lonely to sociable	81.80 (14.84)	76.50 (16.77)	1.071	0.284
Bored to excited	70.70 (16.15)	65.40 (20.00)	0.867	0.386
Angry to calm	85.70 (15.88)	78.00 (19.62)	1.893	0.058
Enjoyment – Activity				
Listening to teacher	59.11 (22.71)	61.90 (28.60)	0.415	0.678
Classwork	67.87 (31.83)	67.00 (32.66)	0.314	0.753
Play	98.60 (2.608)	89.43 (17.73)	0.447	0.655
Transitioning	55.50 (23.93)	63.71 (38.76)	0.365	0.715
Leisure	81.37 (28.17)	87.88 (14.50)	0.944	0.345
Self-care	75.57 (25.36)	57.12 (39.90)	2.207	0.027*
Something else	51.00 (0.00)	66.60 (31.30)	-	-
Difficulty – Activity				
Listening to teacher	26.67 (37.63)	32.20 (26.41)	0.593	0.553
Classwork	33.37 (25.19)	27.88 (22.15)	1.153	0.249
Play	2.60 (2.30)	27.00 (34.18)	1.342	0.180
Transitioning	16.50 (24.114)	17.67 (19.88)	1.000	0.317
Leisure	28.87 (35.00)	13.55 (16.54)	0.674	0.500
Self-care	9.42 (15.03)	13.12 (20.46)	0.944	0.345
Something else	51.00 (0.00)	6.80 (14.65)	-	-
Interest – Activity				
Listening to teacher	64.77 (34.92)	50.70 (29.98)	1.400	0.161

	Pre Mean (SD)	Post Mean (SD)	Z score	P value
Classwork	58.87 (23.17)	60.55 (28.80)	0.000	1.000
Play	95.00 (9.59)	83.71 (24.93)	0.447	0.655
Transitioning	52.83 (34.38)	61.16 (34.11)	1.069	0.285
Leisure	80.37 (21.13)	78.77 (17.54)	0.271	0.786
Self-care	53.42 (24.43)	46.25 (39.08)	1.992	0.046*
Something else	16.00 (0.00)	66.80 (47.02)	-	-
Importance – Activity				
Listening to teacher	64.88 (33.52)	41.40 (28.83)	2.310	0.021*
Classwork	49.87 (31.91)	48.22 (32.07)	1.014	0.310
Play	69.20 (40.59)	53.57 (33.75)	1.604	0.109
Transitioning	53.33 (30.29)	77.50 (24.87)	1.604	0.109
Leisure	73.87 (30.35)	62.00 (34.41)	1.992	0.046*
Self-care	35.85 (36.20)	77.50 (35.09)	1.363	0.173
Something else	51.00 (0.00)	75.20 (24.95)	-	-
Enjoyment – Place				
Classroom	56.70 (20.82)	65.10 (22.90)	1.531	0.126
Outside classroom	64.55 (38.06)	89.22 (19.56)	1.014	0.310
Specialist classroom	81.80 (19.70)	47.67 (37.75)	1.826	0.068
At home transition	77.30 (20.70)	68.60 (24.11)	0.949	0.343
Other	79.50 (20.53)	85.00 (18.73)	1.342	0.180
Difficulty – Place				
Classroom	36.40 (23.33)	24.20 (24.70)	2.295	0.022*
Outside classroom	18.88 (32.09)	23.44 (22.66)	0.676	0.499
Specialist classroom	25.60 (24.66)	36.67 (31.98)	1.461	0.144
At home transition	16.80 (17.70)	22.20 (18.69)	0.771	0.441
Other	3.25 (4.50)	2.00 (1.73)	0.447	0.655
Interest – Place				
Classroom	58.60 (21.76)	59.10 (26.22)	0.051	0.959
Outside classroom	71.33 (32.61)	79.56 (26.72)	0.169	0.866
Specialist classroom	85.00 (22.04)	40.17 (24.45)	1.841	0.066
At home transition	70.80 (18.15)	63.00 (31.05)	0.830	0.407

	Pre Mean (SD)	Post Mean (SD)	Z score	P value
Other	66.00 (44.87)	57.33 (40.67)	0.447	0.655
Importance – Place				
Classroom	58.60 (26.18)	55.90 (27.50)	0.765	0.444
Outside classroom	51.55 (38.34)	65.33 (36.29)	0.507	0.612
Specialist classroom	64.40 (39.20)	38.50 (28.19)	0.730	0.465
At home transition	60.80 (23.42)	62.50 (34.53)	0.415	0.678
Other	52.70 (54.68)	56.67 (48.33)	1.000	0.317
Enjoyment – Who with				
Teacher	54.78 (34.72)	75.56 (20.59)	1.718	0.086
EA	70.00 (34.07)	54.00 (35.61)	1.461	0.144
Classmate	67.00 (17.21)	70.00 (21.04)	0.000	1.00
Family	73.22 (15.78)	71.77 (23.51)	1.014	0.310
Alone	73.40 (25.36)	78.00 (31.49)	0.447	0.655
Someone else	76.33 (40.99)	72.50 (18.17)	-	-
Difficulty – Who with				
Teacher	38.00 (28.87)	25.67 (28.526)	1.599	0.110
EA	31.13 (39.654)	21.75 (23.991)	0.535	0.593
Classmate	24.60 (21.72)	24.40 (24.20)	0.560	0.575
Family	11.22 (13.04)	23.22 (20.12)	1.103	0.270
Alone	15.20 (15.53)	6.00 (11.18)	1.342	0.180
Someone else	10.66 (8.50)	18.83 (29.171)	-	-
Interest – Who with				
Teacher	51.33 (36.609)	59.11 (26.812)	0.280	0.779
EA	74.38 (30.94)	52.00 (34.90)	1.461	0.144
Classmate	66.50 (17.56)	61.50 (22.46)	0.306	0.759
Family	64.66 (14.23)	61.33 (32.88)	0.631	0.528
Alone	43.00 (40.40)	73.00 (39.71)	1.342	0.180
Someone else	88.33 (20.20)	64.83 (22.69)	-	-
Talking – Emotions				
Enjoyment	75.88 (12.91)	68.40 (29.20)	0.296	0.767
Difficulty	22.22 (17.48)	22.80 (23.13)	0.421	0.674

	Pre Mean (SD)	Post Mean (SD)	Z score	P value
Interest	72.22 (10.98)	63.60 (34.28)	0.770	0.441
Importance	68.00 (19.62)	51.70 (30.43)	1.255	0.209
Enjoyment – Talking to				
Teacher	92.00 (11.31)	61.80 (41.09)	1.00	0.317
EA	71.50 (17.67)	53.33 (49.74)	-	-
Classmate	70.667 (21.17)	78.90 (32.65)	0.889	0.374
Family	65.71 (33.78)	54.42 (41.02)	0.943	0.345
Someone else	92.67 (12.702)	72.80 (43.580)	-	-
Difficulty – Talking to				
Teacher	24.50 (33.23)	35.40 (34.45)	1.342	0.180
EA	31.50 (26.16)	47.33 (49.803)	-	-
Classmate	26.44 (21.48)	19.20 (27.40)	0.676	0.499
Family	16.85 (36.93)	17.42 (36.97)	0.184	0.854
Someone else	13.33 (21.362)	13.40 (28.85)	-	-
Interest – Talking to				
Teacher	75.50 (34.64)	67.20 (29.25)	0.000	1.000
EA	52.00 (26.87)	53.67 (49.80)	-	-
Classmate	65.88 (16.97)	67.10 (42.14)	0.296	0.767
Family	60.42 (31.45)	48.71 (42.27)	1.214	0.225
Someone else	93.33 (11.54)	63.80 (50.022)	-	-
Listening to teacher – Emotions				
Sad to happy	75.88 (29.97)	81.30 (26.20)	0.415	0.678
Worried to relaxed	80.77 (32.96)	76.70 (24.27)	0.931	0.352
Lonely to sociable	72.77 (29.35)	80.50 (19.78)	0.593	0.553
Bored to excited	58.88 (35.58)	56.30 (42.42)	0.280	0.779
Angry to calm	78.44 (35.45)	76.90 (27.64)	0.561	0.575
Classwork – Emotions				
Sad to happy	85.62 (16.94)	71.88 (25.85)	1.625	0.104
Worried to relaxed	88.37 (12.05)	79.88 (21.12)	2.023	0.043*
Lonely to sociable	81.00 (14.72)	76.66 (20.17)	1.472	0.141
Bored to excited	81.00 (15.70)	66.11 (30.88)	1.153	0.249

	Pre Mean (SD)	Post Mean (SD)	Z score	P value
Angry to calm	87.37 (14.13)	73.55 (31.50)	1.355	0.176
Play – Emotions				
Sad to happy	93.80 (10.40)	83.43 (28.37)	0.447	0.655
Worried to relaxed	89.00 (15.06)	86.29 (23.48)	0.447	0.655
Lonely to sociable	89.40 (12.03)	74.29 (22.19)	0.447	0.655
Bored to excited	91.80 (11.49)	78.57 (21.44)	1.342	0.180
Angry to calm	96.20 (8.497)	83.29 (21.80)	1.342	0.180
Transition – Emotions				
Sad to happy	87.00 (17.11)	86.16 (19.69)	0.447	0.655
Worried to relaxed	74.17 (37.24)	82.66 (26.02)	0.535	0.593
Lonely to sociable	72.50 (38.22)	81.00 (23.57)	0.000	1.000
Bored to excited	61.33 (29.53)	68.66 (25.05)	1.069	0.285
Angry to calm	74.50 (37.41)	85.00 (22.61)	0.535	0.593
Leisure – Emotions				
Sad to happy	90.00 (17.58)	81.88 (24.23)	0.674	0.500
Worried to relaxed	94.00 (14.69)	84.11 (18.41)	0.944	0.345
Lonely to sociable	87.37 (18.65)	76.22 (24.90)	0.676	0.499
Bored to excited	81.62 (25.12)	66.22 (29.23)	2.207	0.027*
Angry to calm	89.37 (19.84)	80.66 (26.72)	0.674	0.500
Self-care – Emotions				
Sad to happy	86.60 (12.52)	80.37 (27.42)	0.730	0.465
Worried to relaxed	85.00 (17.52)	78.87 (24.60)	0.674	0.500
Lonely to sociable	86.00 (17.46)	83.37 (21.09)	1.214	0.225
Bored to excited	67.16 (32.71)	64.50 (25.46)	0.314	0.753
Angry to calm	92.33 (10.67)	76.00 (35.37)	1.363	0.173
Something else – Emotions				
Sad to happy	100.00 (0.00)	73.40 (25.25)	-	-
Worried to relaxed	100.00 (0.00)	77.80 (22.11)	-	-
Lonely to sociable	100.00 (0.00)	80.00 (12.53)	-	-
Bored to excited	51.00 (0.00)	66.80 (35.68)	-	-
Angry to calm	100.00 (0.00)	67.60 (27.05)	-	-

	Pre Mean (SD)	Post Mean (SD)	Z score	P value
Classroom – Emotions				
Sad to happy	75.50 (28.90)	77.90 (22.31)	0.059	0.953
Worried to relaxed	83.70 (22.12)	82.00 (19.83)	1.244	0.214
Lonely to sociable	75.70 (26.95)	83.20 (17.94)	1.888	0.059
Bored to excited	63.60 (24.85)	67.70 (29.74)	0.060	0.952
Angry to calm	78.90 (31.01)	72.80 (28.01)	1.186	0.236
Outside classroom – Emotions				
Sad to happy	86.44 (18.17)	88.11 (25.32)	0.170	0.865
Worried to relaxed	90.33 (10.39)	84.78 (17.59)	1.524	0.128
Lonely to sociable	90.33 (10.93)	76.44 (23.90)	1.260	0.208
Bored to excited	70.11 (33.90)	79.22 (23.50)	0.314	0.753
Angry to calm	89.22 (17.39)	81.22 (26.20)	1.572	0.116
Specialist – Emotions				
Sad to happy	94.00 (12.00)	82.17 (24.72)	1.000	0.317
Worried to relaxed	97.50 (5.00)	79.67 (24.32)	1.342	0.180
Lonely to sociable	88.00 (14.23)	77.67 (28.79)	-	-
Bored to excited	75.25 (49.50)	33.33 (38.89)	1.604	0.109
Angry to calm	100.00 (0.00)	88.83 (20.63)	1.342	0.180
At home or transition to/from school – Emotions				
Sad to happy	88.50 (16.29)	80.10 (23.00)	0.816	0.415
Worried to relaxed	83.70 (17.65)	77.50 (22.69)	0.889	0.374
Lonely to sociable	84.80 (19.66)	72.10 (18.63)	1.244	0.214
Bored to excited	77.30 (22.70)	62.60 (19.54)	1.480	0.139
Angry to calm	86.70 (14.84)	79.60 (28.16)	0.415	0.678
Other – Emotions				
Sad to happy	81.50 (24.22)	82.00 (15.71)	0.447	0.655
Worried to relaxed	94.25 (11.50)	78.66 (18.90)	0.447	0.655
Lonely to sociable	83.75 (22.18)	80.33 (24.41)	0.447	0.655
Bored to excited	75.00 (26.94)	76.66 (20.30)	0.447	0.655
Angry to calm	93.50 (13.50)	50.66 (44.79)	1.342	0.180
Who Teacher – Emotions				

	Pre Mean (SD)	Post Mean (SD)	Z score	P value
Sad to happy	71.56 (33.72)	89.33 (17.42)	1.400	0.161
Worried to relaxed	88.44 (19.12)	74.22 (21.99)	1.823	0.068
Lonely to sociable	72.11 (35.39)	80.22 (20.88)	0.423	0.672
Bored to excited	65.67 (35.37)	60.11 (25.50)	0.140	0.889
Angry to calm	77.44 (34.15)	76.67 (32.02)	0.339	0.735
Who EA – Emotions				
Sad to happy	84.00 (23.58)	93.75 (11.84)	0.000	1.000
Worried to relaxed	94.63 (10.12)	74.75 (19.77)	1.826	0.068
Lonely to sociable	83.13 (24.85)	80.50 (13.17)	1.461	0.144
Bored to excited	79.25 (24.30)	56.00 (41.38)	1.289	0.197
Angry to calm	94.88 (9.93)	75.75 (19.25)	1.826	0.068
Who Classmate – Emotions				
Sad to happy	85.00 (15.83)	80.00 (21.29)	0.765	0.444
Worried to relaxed	87.80 (16.71)	84.40 (17.65)	1.224	0.221
Lonely to sociable	84.20 (16.20)	78.30 (20.33)	0.818	0.413
Bored to excited	69.90 (20.37)	62.60 (30.42)	1.070	0.285
Angry to calm	86.70 (16.85)	75.20 (21.92)	2.552	0.011*
Who Family – Emotions				
Sad to happy	88.44 (15.33)	81.33 (24.33)	0.943	0.345
Worried to relaxed	86.88 (13.43)	80.88 (23.43)	1.367	0.172
Lonely to sociable	85.77 (14.40)	72.66 (18.11)	1.352	0.176
Bored to excited	75.55 (22.66)	67.33 (21.55)	0.593	0.553
Angry to calm	88.44 (12.54)	79.11 (24.83)	1.609	0.108
Who Alone – Emotions				
Sad to happy	82.20 (24.06)	84.60 (22.13)	1.000	0.317
Worried to relaxed	90.00 (20.19)	77.60 (30.68)	1.000	0.317
Lonely to sociable	82.40 (22.25)	85.00 (23.28)	1.000	0.317
Bored to excited	66.80 (45.48)	66.00 (23.52)	1.000	0.317
Angry to calm	91.20 (17.52)	71.20 (29.01)	1.000	0.317
Who Someone else – Emotions				
Sad to happy	80.00 (28.28)	83.00 (18.665)	-	-

	Pre Mean (SD)	Post Mean (SD)	Z score	P value
Worried to relaxed	92.50 (10.60)	78.67 (18.55)	-	-
Lonely to sociable	92.00 (11.31)	74.33 (16.35)	-	-
Bored to excited	61.500 (54.44)	66.83 (25.63)	-	-
Angry to calm	85.00 (21.21)	91.67 (20.41)	-	-
Talking – Emotions				
Sad to happy	86.66 (7.72)	79.00 (28.72)	0.830	0.407
Worried to relaxed	88.33 (11.06)	79.10 (20.92)	1.400	0.161
Lonely to sociable	87.88 (8.38)	79.20 (21.57)	1.120	0.263
Bored to excited	75.22 (13.76)	65.30 (24.93)	1.244	0.214
Angry to calm	88.44 (10.71)	76.30 (26.34)	1.599	0.110
Talking Teacher – Emotions				
Sad to happy	100.00 (0.00)	85.80 (31.75)	0.000	1.000
Worried to relaxed	100.00 (0.00)	80.40 (14.57)	1.000	0.317
Lonely to sociable	100.00 (0.00)	88.20 (17.49)	1.000	0.317
Bored to excited	78.00 (31.11)	67.40 (33.41)	1.000	0.317
Angry to calm	100.00 (0.00)	73.60 (42.34)	1.000	0.317
Talking EA – Emotions				
Sad to happy	83.00 (2.82)	100.00 (0.00)	-	-
Worried to relaxed	87.50 (17.67)	61.67 (7.50)	-	-
Lonely to sociable	84.50 (6.36)	86.67 (23.09)	-	-
Bored to excited	60.60 (16.26)	45.66 (41.86)	-	-
Angry to calm	92.50 (10.60)	100.00 (0.00)	-	-
Talking Classmates – Emotions				
Sad to happy	87.00 (10.00)	83.70 (29.80)	0.140	0.889
Worried to relaxed	89.66 (10.18)	87.40 (16.13)	0.631	0.528
Lonely to sociable	88.88 (10.81)	83.00 (23.46)	0.771	0.441
Bored to excited	72.66 (18.23)	74.20 (38.31)	0.169	0.866
Angry to calm	87.11 (12.04)	83.40 (22.78)	0.593	0.553
Talking Family – Emotions				
Sad to happy	78.28 (28.90)	64.14 (45.00)	0.943	0.345
Worried to relaxed	74.57 (29.55)	61.85 (44.42)	1.214	0.225

	Pre Mean (SD)	Post Mean (SD)	Z score	P value
Lonely to sociable	78.71 (29.85)	66.85 (38.63)	1.483	0.138
Bored to excited	63.14 (30.96)	62.00 (35.60)	0.524	0.600
Angry to calm	78.85 (30.87)	67.14 (41.64)	1.214	0.225
Talking Someone else – Emotions				
Sad to happy	91.67 (14.43)	80.00 (20.91)	-	-
Worried to relaxed	91.00 (15.58)	87.80 (17.15)	-	-
Lonely to sociable	91.00 (15.58)	72.60 (41.87)	-	-
Bored to excited	90.33 (16.743)	47.80 (45.19)	-	-
Angry to calm	90.33 (16.74)	67.80 (42.60)	-	-
Help – Emotions				
Sad to happy	79.63 (22.26)	69.00 (46.69)	0.674	0.500
Worried to relaxed	86.13 (17.15)	63.57 (45.49)	0.000	1.000
Lonely to sociable	76.75 (24.15)	75.66 (27.42)	0.135	0.893
Bored to excited	69.13 (26.16)	52.00 (31.64)	0.552	0.581
Angry to calm	80.38 (25.26)	69.50 (36.99)	0.730	0.465

Note. * $p = 0.05$

SI Table 6*Difference SSBS, SEI-E, Belonging Scale Scores Pre-Post Intervention, ASD Sample*

	Pre Mean (SD)	Post Mean (SD)	Z score	P value
SSBS-2				
Peer relations	38.60 (8.784)	38.20 (10.696)	0.459	0.646
Self-management/ compliance	34.60 (5.873)	33.50 (7.012)	0.831	0.406
Academic behaviour	26.00 (6.00)	26.50 (6.996)	0.536	0.592
Social competence total	99.20 (18.683)	98.20 (21.358)	0.663	0.507
Hostile/ irritable	25.30 (7.775)	26.10 (7.951)	0.409	0.682
Antisocial/ aggressive	16.00 (6.464)	16.00 (5.249)	0.238	0.812
Defiant/ disruptive	14.80 (4.849)	16.20 (5.922)	1.191	0.234
Antisocial behaviour total	56.10 (18.181)	58.30 (17.069)	0.969	0.333
SEI-E				
Teacher student relationship	37.44 (8.457)	35.44 (11.326)	0.000	1.000
Peer support for learning	22.67 (5.657)	22.67 (6.325)	0.566	0.571
Family support for learning	18.00 (2.121)	17.67 (3.000)	0.000	1.000
Future goals and aspirations	19.78 (5.449)	17.89 (7.061)	1.261	0.207
Intrinsic motivation	6.56 (3.046)	6.67 (2.915)	0.106	0.915
Behavioural engagement	7.78 (4.086)	8.75 (3.655)	0.106	0.916
Disaffection	8.78 (4.324)	9.56 (4.246)	0.430	0.667
SEI-E total	104.44 (18.487)	100.33 (26.782)	0.141	0.888
Belonging scale	28.30 (3.945)	28.10 (6.297)	0.153	0.878

Note. SSBS-2: School Social Behaviour Scale-2; SEI-E: Student Engagement Instrument-Elementary. *p<0.05

SI Table 7

Difference Between ASD and TD Scores in HCSBS, SEI-E, Belonging, In My Shoes Scales Pre-Post In My Shoes Intervention

Measure	Students with ASD		Classmates		p
	Pre Mean (SD)	Post Mean (SD)	Pre Mean (SD)	Post Mean (SD)	
HCSBS (n=27)					
Peer relations	48.50 (11.48)	53.67 (10.89)	71.74 (7.97)	71.22 (11.31)	0.145
Self-management/ compliance	42.30 (11.99)	48.11 (9.99)	59.30 (7.53)	61.39 (8.41)	0.106
Social competence Total	90.80 (21.49)	101.78 (19.09)	131.04 (14.46)	132.61 (18.67)	0.085
Defiant/ Disruptive	40.30 (15.28)	39.11 (11.42)	30.35 (9.80)	25.39 (5.73)	0.705
Antisocial/ Aggressive	32.80 (15.17)	31.56 (10.35)	24.70 (6.17)	22.83 (6.07)	0.781
Antisocial Behaviour Total	73.10 (29.72)	70.67 (20.40)	55.04 (15.25)	47.22 (10.16)	0.743
SEI-E					
Teacher student relationship	37.44 (8.46)	35.44 (11.33)	36.15 (5.79)	36.60 (6.21)	0.718
Peer support for learning	22.67 (5.66)	22.67 (6.33)	23.66 (4.13)	24.12 (4.08)	0.852
Family support for learning	18.00 (2.12)	17.67 (3.00)	17.74 (2.42)	17.70 (2.61)	0.960
Future goals and aspirations	19.78 (5.45)	17.89 (7.06)	20.74 (3.65)	21.17 (3.09)	0.130
Intrinsic motivation	6.56 (3.05)	6.67 (2.92)	6.75 (3.20)	8.89 (1.93)	0.090
Behavioural engagement	7.78 (4.09)	8.75 (3.66)	9.20 (2.25)	9.25 (2.13)	0.813

Measure	Students with ASD		Classmates		p
	Pre Mean (SD)	Post Mean (SD)	Pre Mean (SD)	Post Mean (SD)	
Disaffection	8.88 (4.32)	9.56 (4.25)	8.89 (2.89)	8.89 (2.61)	0.963
SEI-E total	104.44 (18.49)	100.33 (26.78)	105.04 (13.66)	108.49 (12.62)	0.350
Belonging Scale	28.30 (3.95)	28.10 (6.29)	30.22 (4.14)	30.12 (4.49)	0.815
In My Shoes					
Situation based	13.50 (4.12)	13.78 (3.63)	15.76 (1.89)	16.17 (1.89)	0.590
In the past week	30.20 (12.10)	33.78 (9.20)	37.35 (5.28)	36.37 (5.60)	0.094
Involvement	18.000(4.37)	17.89 (5.39)	20.90 (3.59)	20.43 (2.68)	0.371
Learning about the autism spectrum	7.83 (0.41)	7.83 (0.41)	7.18 (1.27)	7.50 (1.19)	0.278

Note. HCSBS, Home Community Social Behaviour Scale; SEI-E, Student Engagement Instrument – Elementary Version; *p<0.05; **p<0.01; p<0.001

Chapter 8: Discussion and Summary

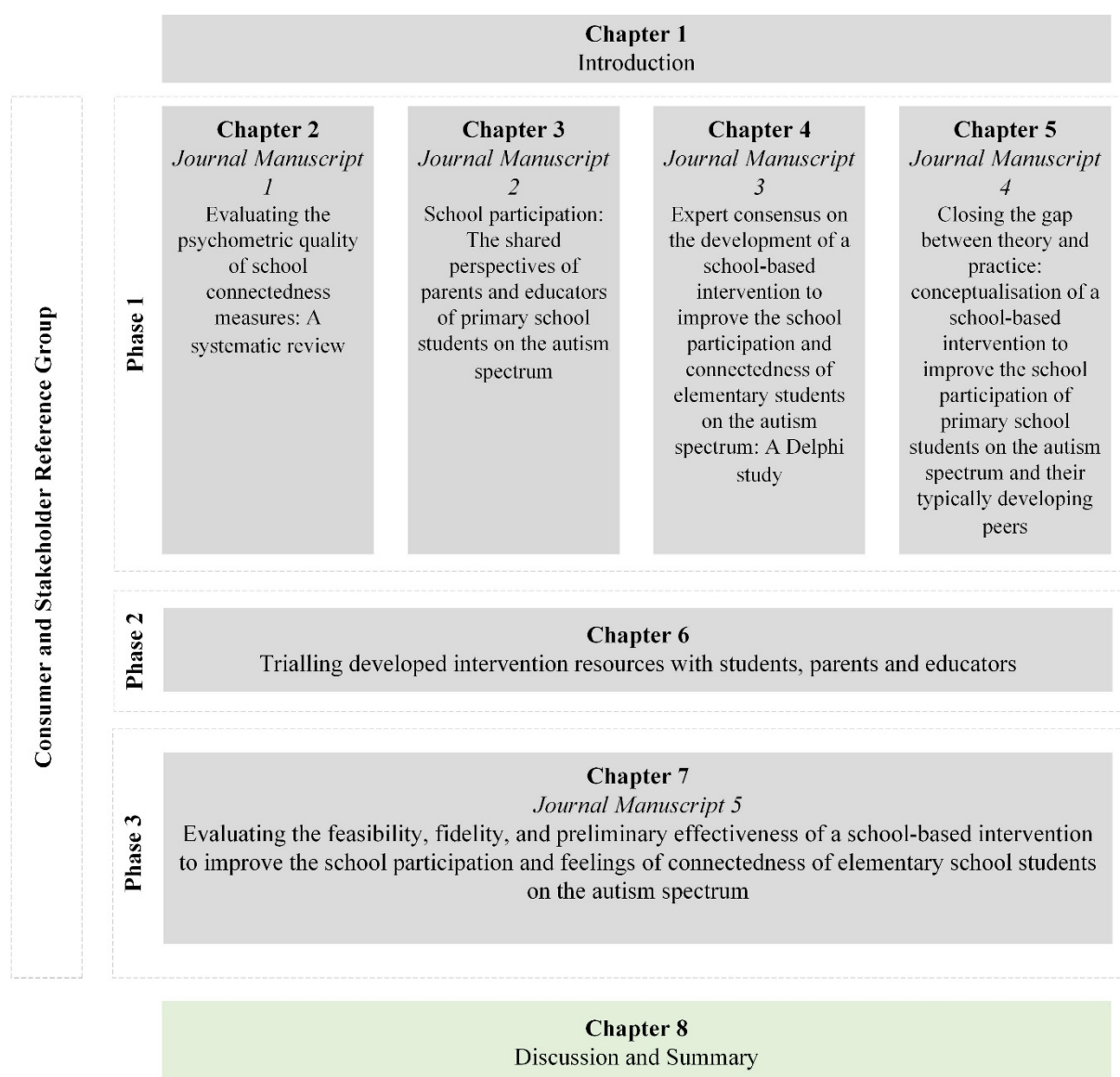
I was motivated to undertake this research after reflecting on my own clinical practice and the experiences of the students, parents, and educators that I supported. I was disheartened that many students felt they did not belong and were not adequately supported at school, a place where they spent most of their waking hours. Despite mounting evidence emphasising the significant impact reduced school participation and connectedness has on student outcomes, there continues to be a paucity of interventions aimed specifically at increasing students' participation and experience of connection in schools (Allen, Vella-Brodick, & Waters, 2016; Centers for Disease Control and Prevention, 2009), particularly for primary school students on the autism spectrum.

To address this gap in research and practice, I sought to develop an evidence-based intervention that aims to improve the school participation and connectedness of primary school students on the autism spectrum (aged 8 to 10 years) and their typically developing peers. The United Kingdom Medical Research Council (UKMRC) guidelines on the development of complex interventions were used to inform the design of the research, conducted across three phases, to optimise the development of the intervention from conceptualisation to implementation in the school environment (see Chapter 1, pages 22 to 24 for phase-based objectives). Involvement of consumers and stakeholders throughout this process (see Figure 3) was integral in ensuring the intervention was relevant and met the needs of consumers and stakeholders 'in real life', and also improved buy-in of ensuing research. My professional lens as an occupational therapist was pivotal in guiding my understanding of the factors that support and hinder students' school participation and helped to guide the development of the intervention using a strengths-based occupation focused approach. In this final Chapter (see Figure 19), I will discuss the importance of feasibility studies in the context of school-based intervention research and the major contributions of this

research to practice, including the strengths and limitations of this research and recommendations for future research.

Figure 19

Outline of Thesis, with Chapter 8 Highlighted



A Case for Feasibility Studies – the Building Blocks for Successful School-Based Interventions

The novel school-based intervention resulting from this research was developed based on an extensive review of the literature and new primary evidence gathered from studies (i.e., systematic literature review, focus groups and Delphi study) contained in this thesis. As described in Chapters 2 to 6, the process of developing the intervention was comprehensive, detail orientated and aligned closely with theory development. For example, identifying the theoretical constructs that contribute towards students' school participation, seeking iterative feedback from students, parents, educators, researchers and clinicians throughout the development of the intervention and conducting preliminary evaluations of participants' responses. Consumers and stakeholders were not only consulted and involved in the conceptualisation of the intervention (e.g., via exploration of parent and educator perspectives in focus groups and expert opinions in the Delphi), but also involved in co-designing and co-producing intervention resources, data collection procedures and evaluating the intervention in line with UKMRC (Campbell et al., 2000; Campbell et al., 2007; Craig et al., 2019) and *Engagement Framework* (2018) recommendations. The process of developing the intervention was iterative, formative and adaptive, and focused on evaluating, first and foremost, the feasibility of the intervention in the school environment.

Feasibility studies are critical to the "...successful implementation of randomised controlled trials (RCT's), one of the top tier designs for supporting intervention effectiveness" (Tickle-Degnen, 2013, p. 172). Feasibility studies are particularly important in the context of school-based intervention research where many factors can impact the successful implementation and internal validity of intervention studies, and valuable time and resources can be wasted if feasibility is not carefully examined (Bowen et al., 2009; Orsmond & Cohn, 2015). Furthermore, feasibility studies are relevant when evaluating complex interventions,

such as *In My Shoes*, derived from blended active agents (i.e., whereby several intervention techniques and delivery modalities are utilised to effect change in intervention outcomes) and where there is dynamic interplay between intrinsic and extrinsic factors on intervention outcomes (Tickle-Degnen, 2013). Despite extensive research and UKMRC guidelines emphasising the importance of feasibility studies (Bowen et al., 2009; Orsmond & Cohn, 2015; Tickle-Degnen, 2013), feasibility studies are rarely conducted, or if they are, they are done superficially, to the detriment of many interventions. A deliberate decision was made to focus on the process of developing the intervention and to evaluate its feasibility; building a strong foundation for future pilot studies and ultimately, accelerating the development of a more effective school-based intervention (Orsmond & Cohn, 2015).

Based on findings from the feasibility study described in Chapter 7, *In My Shoes* is a feasible and appropriate intervention, and shows promise in improving the school participation of students on the autism spectrum (aged 8 to 10 years) and their typically developing peers. Future pilot studies are therefore warranted to further evaluate the interventions outcomes. As described in Chapter 1, in line with updated UKMRC guidelines, the process of piloting the intervention may need to be repeated several times to adequately test recommended adaptations to the intervention and data collection procedures, before larger scale evaluations such as RCT's are warranted (Craig et al., 2019). A flexible approach to developing and evaluating complex interventions is important, as "...too strong a focus on the main evaluation may lead researchers to neglect adequate development, piloting work or proper consideration practical issues of implementation, which can result in weaker interventions that are harder to evaluate, less likely to be implemented and less likely to be worth implementing" (Craig et al., 2019, p. 4). The feasibility study described in this thesis was invaluable in providing insights into the benefits and challenges of conducting research in schools, and factors that support and hinder the feasibility of school-based interventions.

These insights are described below and can be used to inform the design of future research relating to *In My Shoes* and by other researchers, clinicians and educators wishing to conduct research in schools.

Benefits and Challenges to Conducting Research in Schools

Undertaking research in schools can be rewarding and challenging for educators and researchers. Engagement in research provides schools with a platform to sharpen its focus on school improvement and improve teaching and learning (Midford, McBride, & Farrington, 2000). Research engagement also provides teachers with opportunities for professional development and positively impacts school culture by supporting schools to reflect on pedagogy, assessment, curriculum and education policy (Midford et al., 2000). Several studies describe benefits of conducting research in schools; for example, Hong & Lawrence (2011) suggests it provides educators with opportunities to self-evaluate their teaching practices, and Mahani and Molki (2012) report it allows educators with opportunities to make changes to their practice, which can have a positive impact on teaching and learning. The research contained in this thesis produced several key findings about conducting research in schools. Benefits included:

- providing students with repeated opportunities to practice skills in their natural environment;
- using natural peer mentors to support the development of skills;
- empowering parents, peers and teachers to understand, accept and support students on the autism spectrum;
- empowering peers and teachers to be more inclusive and supportive of students on the autism spectrum in mainstream schools;
- identifying contextual and environmental factors that impact the implementation of school-based interventions and the collection and analysis of data; and

- applying research that has the potential to buffer the long-term documented implications of reduced school participation on student outcomes.

Although there are a number of benefits to conducting research in schools, it can also present many challenges. The outbreak of coronavirus disease (COVID-19) and resulting lockdowns and school closures in the Perth metropolitan area in 2020 led to changes in the design of the research in phase 2. Specific intervention resources were trialled rather than the intervention in its entirety, which meant that teachers' delivery of the content and students' responses to lesson plans, as well as appropriateness of outcome measures were not evaluated until the feasibility study in phase 3. Navigating ethics policies and procedures and recruiting schools to participate was also challenging in this research. School governance also impacted policies and procedures in relation to research, the availability of school resources and, therefore, schools willingness to participate in the research. Studies suggest that educators are often reluctant to engage in research due to a crowded teaching timetables, heavy teaching workloads, insufficient research training, lack of research skills, lack of financial support and limited time (Hong & Lawrence, 2011; Mahani & Molki, 2012; Midford et al., 2000). Furthermore, literature indicates schools often show resistance to engaging in research relating to health improvement, as they believe it diverts attention away from the 'core business' of schools, which is to increase academic attainment (Bonnell et al., 2014; Littlecott et al., 2018). Challenges to conducting research in schools, identified from this research, are consistent with the literature and included:

- an overcrowded curriculum with a focus on assessment and reporting, leading to hesitancy to deliver content that cannot be easily assessed;
- lack of time and resources to deliver the school-based intervention as specified in the manual (e.g., complete all lesson content within a 45-minute time frame);

- lack of time to administer required outcome measures, particularly in the first and final week of term;
- lack of cohesive coordination between teachers and school leadership staff to deliver additional intervention components such as whole-school activity ideas;
- limited understanding of the importance of research in improving student outcomes and, therefore, limited valued placed on research; and
- limited parent involvement in school related activities due to work commitments, COVID–19 social distancing requirements and policies relating to the amount and frequency of communication between home and school.

Factors that Support and Hinder Feasibility of School-Based Interventions

A way to mitigate some of the challenges experienced in conducting research in schools is to focus on developing school-based interventions that are feasible and appropriate from educators' perspectives, an overarching aim of the research contained in this thesis. If the intervention is deemed feasible and appropriate, educators will see value in investing time in the intervention and ensuing research, thus maximising intervention outcomes. Based on findings from the feasibility study described in Chapter 7, the following components supported the feasibility of *In My Shoes*:

- standardised online professional learning that could be completed at a time and location convenient to teachers implementing the intervention;
- a comprehensive intervention manual and pre-prepared resources that minimised preparation time for teachers;
- clearly presented links to state and national curriculum and suggestions of ways to assess student outcomes to assist teachers with reporting requirements;
- access to online and face to face support from researchers throughout the intervention to troubleshoot challenges; and

- use of a whole-class approach to teach skills.

The following factors or intervention components, however, limited the feasibility of

In My Shoes:

- flexibility in the way the whole-school and parent component of the intervention were delivered, which led to lack of ownership and accountability and, therefore, limited implementation of these intervention components;
- quantity and timing of outcome measures delivered in busy weeks of term;
- amount of lesson content to be delivered within a 45-minute time frame;
- use of several paper-based worksheets in the whole-class program; and
- the impact of COVID–19 social distancing requirements on school policies and procedures, which limited implementation of whole-school and parent intervention components.

The process of trialling developed intervention resources with students, parents, and educators in phase 2 (Chapter 6) was helpful in identifying intervention components and data collection procedures that could be improved to maximise the interventions feasibility in the school environment. For example, the number of paper-based student and teacher outcome measures and the frequency of Experience Sampling Method (ESM) prompts were reduced in response to teachers concerns about the quantity and timing of outcome measures. Additional time was also allocated to activities in lesson plans and additional information was provided about ways teachers could individualise lesson plans to deliver content within the proposed time frame. Furthermore, content in parent information handouts was reduced and a summary of the intervention was provided based on parent recommendations (see Appendix F7).

Although modifications were made to the intervention and data collection procedures, the quantity of outcome measures and depth of lesson content and parent information continued to negatively impact the feasibility of the intervention in the school environment.

Striking a balance between providing thorough (but concise and well targeted) intervention activities and resources, planning rigorous data collection procedures *and* feasibility, is a challenge when conducting research in schools. While an effort was made to minimise burden for teachers, additional outcome measures were purposefully used as part of the feasibility process. This was important in identifying the most suitable measures to use to evaluate changes in intervention outcomes in future research. Based on findings of the feasibility study, however, lesson content could be further reduced and activities could be adapted to ensure teachers have enough time to adequately explore concepts within proposed time frame. A further change to the intervention, based on findings of the feasibility study, could be presentation of parent information in video format that could be independently accessed by parents online. In future studies, teachers can be assured that there are minimal negative implications of completing smart device surveys for students on the autism spectrum. The majority of students involved in the feasibility study reported they enjoyed using the smart devices and only 1 of 10 students reported she did not like the attention the device brought to her in the classroom. Based on experiences from the feasibility study, additional information can be provided to teachers and schools about how to mitigate challenges associated with the use of smart devices for students on the autism spectrum. These reflections are an important part of the process of developing complex interventions, and help to develop evidence-based interventions that are actually utilised in the school environment with the aim of improving students' social, emotional and academic outcomes.

The Resulting School-Based Intervention: *In My Shoes*

A major contribution of this research is the intervention itself. *In My Shoes* is a novel peer supported, curriculum embedded, teacher led, manualised school-based intervention that aims to improve the school participation and connectedness of students on the autism spectrum (aged 8 to 10 years) and their typically developing peers. Unlike other autism-

specific school-based interventions, *In My Shoes* supports students' school participation in context of the daily activities, tasks and routines that students participate in at school. This may involve, for example, playing and resolving conflict with peers at break time and managing emotions when things change at school such when there is a relief teacher or fire evaluation drill. Intervention outcomes are directly linked to intrinsic student constructs (i.e., activity competence, sense of self, preferences and school connectedness) identified to impact students' school participation in the MSPA. The intervention focuses not just on improving students' skills (e.g., interpersonal empathy, prosocial behaviour), but also enhancing psychological aspects (e.g., confidence, satisfaction) of students' school experience. Involvement at a whole-class, parent and school level aligns with best practice in school-based intervention research (Carrington et al., 2021; Dingfelder & Mandell, 2011) and helps to shift the misnomer that students' school participation occurs in isolation. More accurately, that it is a collective effort of all individuals within the environment to support students' school participation.

In My Shoes intervention resources are comprehensive and presented to a high professional standard. Moreover, the process of developing the resources was inclusive and collaborative involving students, parents, educators, researchers, and clinicians throughout the research process (see Chapter 1, pages 18 to 20, and Chapters 3 to 6). The resources were highly valued by teachers and positively contributed to the intervention's feasibility.

Intervention resources include:

- interactive videos teaching the core concept of the program, '*look, think, decide*', with primary school students in various common school social situations;
- an edited documentary style video sharing the school experiences of real-life students on the autism spectrum;

- standardised online professional learning videos and pre-reading material (see Appendix H1);
- an interactive online PDF manual (see Appendices H2 and H3);
- an interactive power-point presentation designed to be delivered alongside lesson plans as an additional visual support for students on the autism spectrum (see Appendix H4); and
- comic strip style illustrations involving a diverse range of characters used in lesson plans and worksheets (see Appendix H3).

In addition to producing a manualised intervention, the process of developing the intervention was clearly documented from conceptualisation to implementation in the school environment. According to Hoffman and colleagues (2014), the quality of description of interventions in publications is often poor, which limits researchers' ability to replicate or build on research findings. The UKMRC guidelines also state that studies reporting on development of complex interventions must include a detailed description of the intervention to enable replication, evidence synthesis and wider implementation (Campbell et al., 2000; Campbell et al., 2007). In Chapters 2, 3 and 4, I outline research studies undertaken to inform, develop, and refine the intervention. In Chapter 5, I synthesise the multi-stage iterative process of developing the intervention and describe the intervention according to Hoffman and colleagues (2014) Template for Intervention Description and Replication (TIDieR) checklist (see Appendix G14). Findings from this research contribute towards the evidence base of autism, school-based intervention research and intervention development and, because findings have been clearly documented, can be used by other researchers seeking to develop and evaluate complex interventions to improve student school participation.

The Proposed Theoretical Model of School Participation and Autism

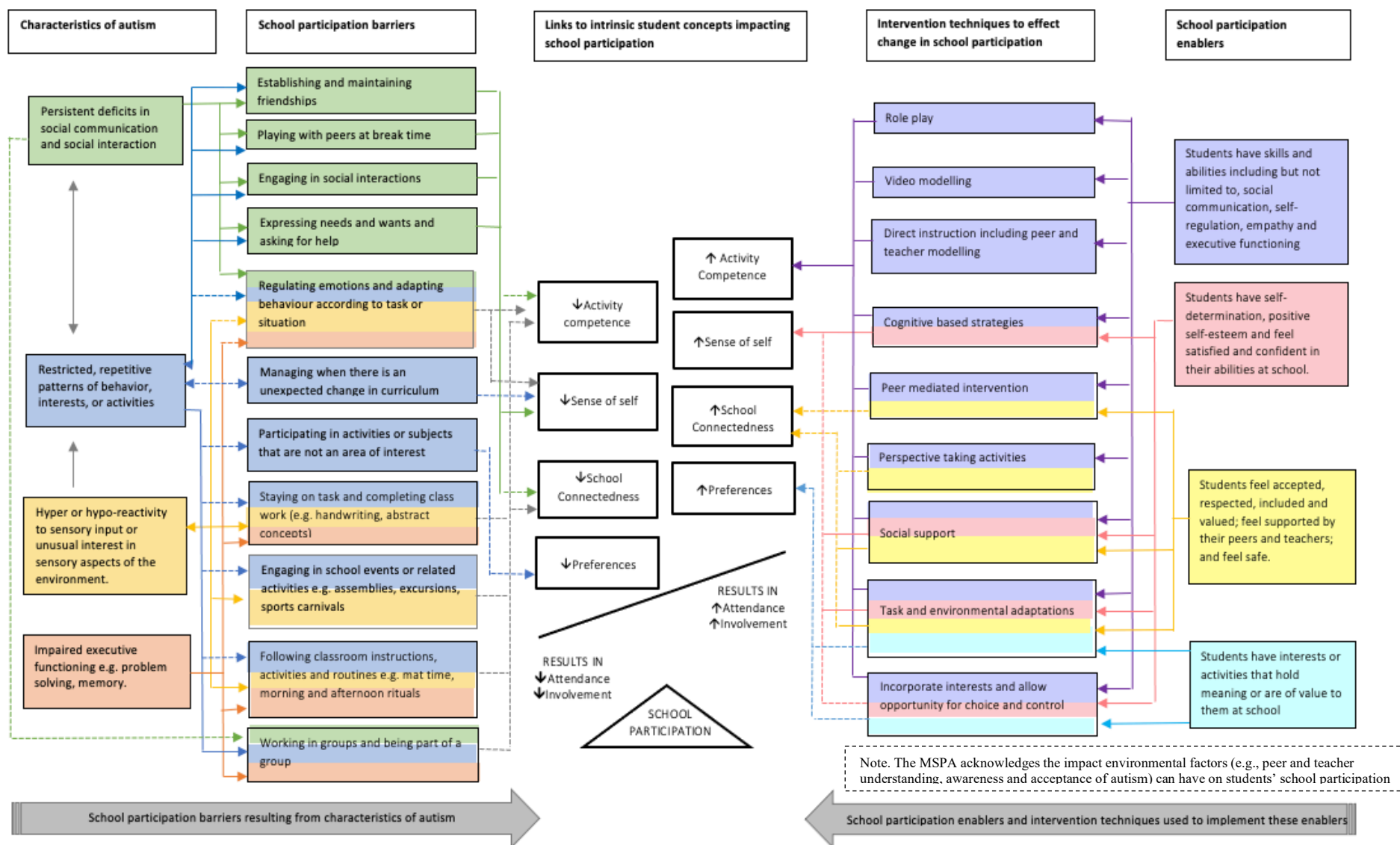
As described in Chapter 1, challenges often arise in the development of complex interventions because researchers fail to adequately define constructs of interest (Evans, 2003). A major contribution of this research is the Model of School Participation and Autism (MSPA; see Figure 20); a theoretical model that illustrates the interactive process between characteristics of autism and factors that promote school participation (see Chapter 5). Defining and conceptualising school participation and related intrinsic student concepts (i.e., activity competence, sense of self, preferences and school connectedness) was crucial in establishing a strong theoretical rationale for the intervention. Furthermore, delineating the impact characteristics of autism have on students school participation and identifying evidence-based intervention techniques that effect change in these constructs was essential in clearly articulating how and why the intervention was likely to work from a theoretical perspective (Campbell et al., 2000). While the MSPA has been developed based on literature relating to autism, the MSPA can be applied to students with other diagnoses and used by researchers, educators, and clinicians wishing to develop interventions targeting school participation in other student populations. The schematic illustration with clear description of intrinsic factors impacting students' school participation is a useful visual tool for researchers, educators and clinicians who wish to understand the factors that drive and shape student school participation, so that appropriate supports can be implemented.

While Imms and colleagues (2016) family of Participation and Related Constructs (fPRC) provided clarity on the definition of participation and related intrinsic concepts (i.e., activity competence, sense of self, preferences), it did not include intrinsic student concepts impacting participation in the school environment, including students' sense of school connectedness, which is a crucial component of the MSPA. Understanding students' sense of school connectedness is important when exploring student school participation, as a student

may attend or appear involved in some aspects of school but may not necessarily feel connected to their school. This may impact their participation in specific activities, tasks, and routines such as establishing and maintaining friendship, or working in a group in the classroom. The conceptualisation of school connectedness, and how this concept is operationalised in measures, was explored in the systematic literature review described in Chapter 2. Findings from the systematic literature review added to the theory base of the MSPA, and therefore the intervention, and assisted in the selection of outcome measures in the feasibility study in phase 3.

Figure 20

Proposed Model of School Participation and Autism (MSPA)



Pre-post intervention outcome measures used in the feasibility study aimed to evaluate changes in intrinsic student school participation constructs in the centre of the MSPA (i.e., activity competence, sense of self, school connectedness, and preferences). Findings from the feasibility study outlined in Chapter 7, provided evidence indicating improvements in all school participation constructs for *all* students participating in the intervention. The type and significance of this data, however, varied. For example, the Behaviour Assessment System for Children – Third Edition Student Observation System (BASC 3 – SOS) data reported a statistically significant improvement in students’ interactions with peers and a reduction in inattentive behaviours, and ESM data reported a statistically significant reduction in difficulties experienced in the classroom. This was the strongest data relating to changes in the activity competence of students on the autism spectrum. Autism specific data relating to students’ sense of self, school connectedness and preferences, however, was limited to qualitative interviews or were not statistically significant. Limited change was also noted across the sample (i.e., students on the autism spectrum *and* typically developing peers) relating to students sense of self. These findings, however, should be interpreted with caution, as the primary focus of the research was to evaluate the feasibility of the intervention and not its outcomes. The findings, however, suggest that:

- a. intrinsic student constructs identified in the MSPA *are* important and contribute to students’ school participation;
- b. identified intervention techniques show promise in effecting change in the school participation of students on the autism spectrum; and
- c. the measurement of latent variables such as students’ sense of self and school connectedness need further development, or may not be susceptible to change in the short term.

Challenges in the Measurement of Latent Variables in Primary School Populations

Intrinsic student constructs such as students' sense of self and school connectedness cannot be observed. The presence of these latent variables, however, can be detected by their effects on variables that are observable, such as students' behaviour in the classroom (El-Den, Schneider, Mirzaeri, & Carter, 2020). Although a range of quantitative and qualitative measures were used to evaluate changes in intrinsic student school participation constructs post intervention, there is no way of knowing whether latent variables (i.e., sense of self and school connectedness) were captured reliably or accurately (El-Den et al., 2020). The measurement of latent variables is particularly challenging in primary school populations as these constructs are abstract, which can make them difficult for students to understand and effectively communicate. Moreover, these psychological constructs often remain relatively stable over time and, therefore, measures may not be sensitive enough to detect changes over a short period of time – nor is it necessarily desirable to rapidly change some stable psychological constructs (e.g., change from being introverted to being extroverted). Furthermore, raising students' awareness of these constructs at the beginning of the intervention, may have led to students being more critical of their school experiences, which may have contributed to limited change post intervention.

Limited availability of reliable and valid measures to evaluate changes in latent variables, such as school connectedness in primary school populations was a challenge in this research. The Student Engagement Instrument (SEI) was identified to have the strongest psychometric properties in the systematic literature review described in Chapter 2, however, it has not been validated with primary school students. The elementary version of this measure was used in the feasibility study to evaluate changes in students' self-report school engagement, however, has limited published information on its psychometrics, which may have impacted study findings related to school connectedness. Future research to develop and

validate new and existing measures in primary school populations is required, so that latent variables can be reliably measured over time.

Peer Mediation – a Key Intervention Technique Effecting Change in the School

Participation of Students on the Autism Spectrum

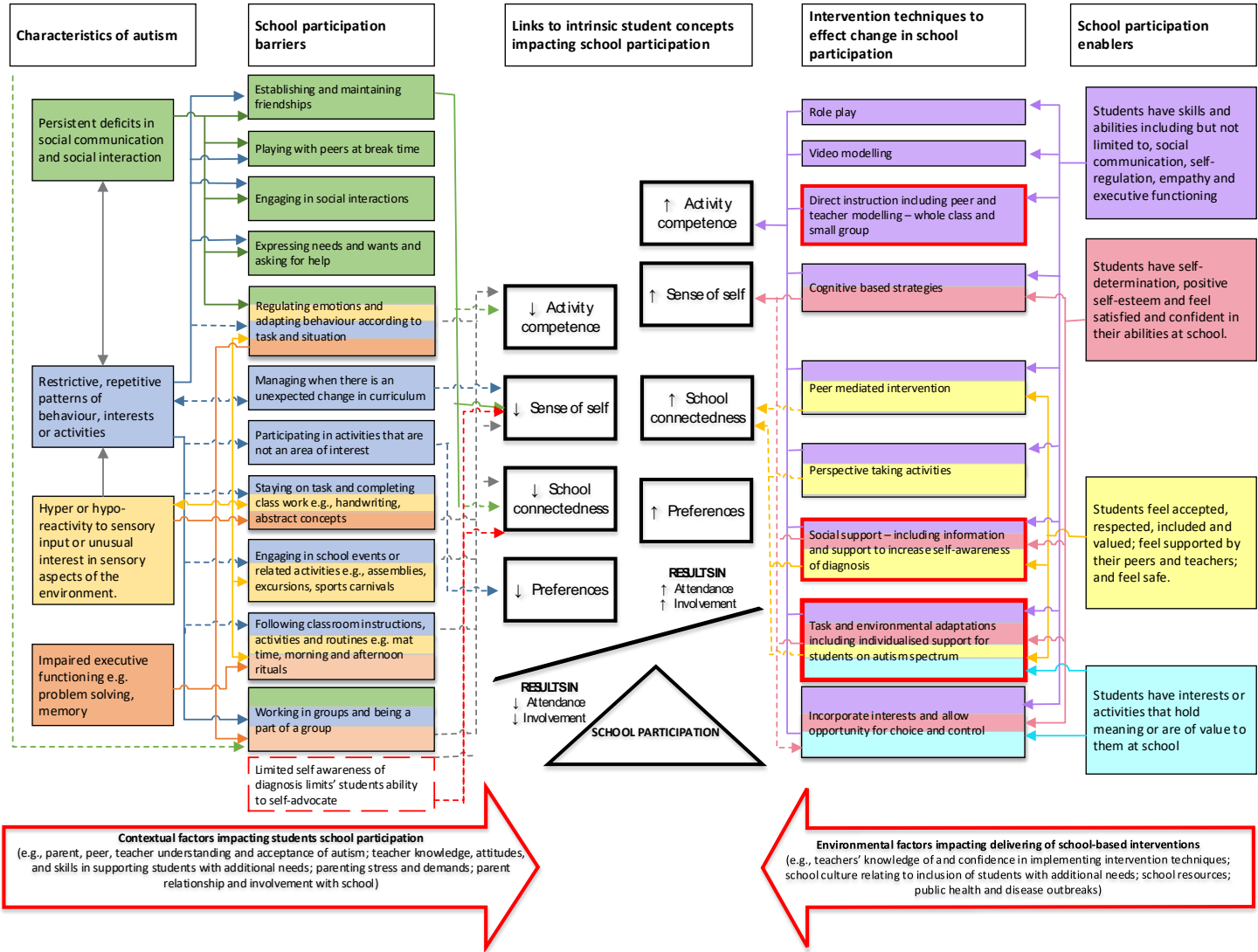
Peer mediated interventions have strong evidence to support their effectiveness in improving academic and social communication skills, as well as improving peer acceptance and reducing social isolation (Bene, Banda, & Brown, 2014; Wang, Cui, & Parrila, 2011). Peer mediation was therefore included as an intervention technique for *In My Shoes* (see Figure 20). While some benefits to peers were anticipated, the extent and significance of these benefits exceeded expectations (see Chapter 7). Statistically significant improvements in students' self-report school engagement (i.e., school connectedness), motivation to participate at school (i.e., preferences), understanding of autism (i.e., preferences) and intervention content (i.e., activity competence) were reported post intervention. Observations of students' classroom participation reported increased frequency of peers prompting students to re-engage in an activity, to locate materials, or to help complete a task in the classroom post intervention (i.e., activity competence, school connectedness). Qualitative interview data also described benefits such as increased peer understanding and acceptance of autism (i.e., preferences), with multiple specific instances reported of students recognising when a peer (with or without autism) needed help and actively supporting peers in the classroom and playground. These findings emphasise the importance and benefit of including peers in school-based interventions, specifically fostering an inclusive environment that is accepting and supportive of differences. These findings provide further evidence to support the effectiveness of peer mediated instructional arrangements in improving the school participation of students on the autism spectrum.

The Adapted Model of School Participation and Autism Based on Research Findings

The process of developing and evaluating *In My Shoes* assisted in continually assessing the hypothesised mechanisms of change outlined in the MSPA. Several changes are proposed to the MSPA based on the findings of this research, including highlighting the significant impact contextual (e.g., parent, peer and teacher understanding, awareness and acceptance of autism) and environmental factors (e.g., teachers' knowledge of and confidence in implementing intervention techniques) have on students' school participation and the delivery of school-based interventions. Contextual factors impacting the school participation of students on the autism spectrum have been illustrated using an arrow from left to right, at the bottom of the MSPA (see Figure 21). Whereas, environmental factors impacting the delivery of school-based interventions have been illustrated using an arrow from right to left, at the bottom of the MSPA (see Figure 21). Changes to the school participation barriers of students on the autism spectrum and intervention techniques in the MSPA, based on findings from the feasibility study, have been highlighted using red boxes in Figure 21, and are described in detail below.

Figure 21

Adapted Model of School Participation and Autism (MSPA) Based on Research Findings



Students' Self-Awareness of Autism Diagnosis and the Impact on Students' School

Participation

Surprisingly, most students involved in the feasibility study were not aware of their diagnosis or had only recently been told. When contacting parents to establish consent to participate in the research, parents who had not yet disclosed their child's diagnosis reported that they felt this was a good opportunity to start exposing their child to the concept of autism in a supportive environment. In all participant information handouts and communication with educators, parents and students, the intervention was advertised as a program to help all students learn to understand, accept, and support individual differences in their classroom. While the whole class program included an autism specific lesson plan that aims to increase all students' understanding, awareness and acceptance of autism, the delivery of this lesson was adapted to suit the individual needs of classrooms and preferences of parents and students. For example, some students who were aware of their diagnosis chose to share their experiences with their class, whereas other students who were not aware of their diagnosis participated in the lesson with the rest of their class. Additional information was provided to teachers about ways to support all students to understand autism specific content and answer any questions that arose from the lesson. Students' self-awareness of their autism diagnosis, however, is particularly relevant within context of the intervention involved in this research as one of the outcomes of *In My Shoes* is to increase self-awareness of strengths and differences and the strengths and differences of peers. Without an understanding of their diagnosis, students on the autism spectrum have limited capacity to not only recognise their strengths and differences, but accept these and learn to advocate for themselves in a positive and proactive way at school.

Despite increasing numbers of students being diagnosed with autism, there is surprisingly little research published about parents' experiences of disclosing their child's

autism diagnosis (Crane, Jones, Prosser, Taghrizi, & Pellicano, 2019). A recent systematic review identified only five studies examining parents' experiences, which included three published articles and two dissertations with small sample sizes (Smith, Edelstein, Cox, & White, 2018). Parents in these studies were largely reluctant to disclose their child's diagnosis as they were concerned "...their child would not understand, would experience stigma or use their diagnosis as an *excuse*" (Smith et al., 2018, p. 102). Parents who had disclosed their child's diagnosis reported their child was more aware of their strengths and challenges and better able to self-advocate for their needs. In this research, when students' awareness of their diagnosis arose in pre-intervention parent interviews, parents attributed the following reasons for not telling their child about their diagnosis: their child had only recently been diagnosed; they were still trying to understand and accept the diagnosis themselves; they did not feel their child was ready for the information; and they felt knowing about the diagnosis would not be helpful for their child. Lack of student self-awareness of their diagnosis may have contributed to limited significant change in students' sense of self, school connectedness and self-report school engagement in the feasibility study.

Although research exploring disclosure of potentially sensitive information recommends openness and honesty and providing information as early as possible (Badarau et al., 2015; Crane et al., 2019), the challenging nature of these conversations must be acknowledged. Clearly, more research is needed to understand parents' experiences in disclosing their child's diagnosis and to develop evidence-based resources that support parents to understand, accept and share this information with their child. Schools also play a significant role in destigmatising autism diagnoses by fostering a positive school climate that is inclusive of students with diverse learning needs. *In My Shoes* aims to foster a positive school climate by increasing *all* students understanding and awareness of differences and autism. More support is needed, however, to assist teachers and schools to share this

information in a supportive and positive way given the sensitive nature of the topic and varied awareness of diagnoses within student populations. Based on these findings, students' self-awareness of their diagnosis has been added as an additional barrier impacting school participation of students on the autism spectrum on the left-hand side of the MSPA. This is compounded by contextual factors such as parents', peers' and teachers' understanding, awareness and acceptance of autism (see Figure 21). Furthermore, social support as an intervention technique on the right-hand side of the MSPA, has been extended to include additional information and support for parents and schools about autism and ways to share this information.

Additional Individualised Support May be Required for Students on the Autism Spectrum

When analysing data from students on the autism spectrum in isolation, limited significant change was noted in students self-report school engagement post intervention. Limited change in autism-specific data may suggest the intervention simply had minimal effect on students on the autism spectrum or may suggest students on the autism spectrum may require additional individualised support throughout the duration of the intervention to specifically reinforce concepts and practice skills with peers. Students may have found perspective taking activities in the whole-class lesson plans challenging, particularly when asked to apply concepts to artificial characters and comic-strip situations. While whole-class approaches have many advantages (Minniss & Stewart, 2009), they are most effective when immediately followed by small group instruction (Meador, 2020). Small group instruction helps to solidify concepts learned in a whole group setting, identify students struggling to master the concepts, and adopt more individualised approaches to support student understanding (Hattie, 2009; Van Zant & Volpe, 2018). In the context of *In My Shoes*, this could have involved students on the autism spectrum with a select number of typically developing peers participating in small group activities where they had the opportunity to

apply concepts to a situation that recently happened to them in the classroom or playground using video modelling and role play. This proposed change is outlined in the adapted MSPA (Figure 21); extending direct instruction to include small group work, and task and environmental modifications to include individualised support for students on the autism spectrum.

The balance, however, between strengthening weak links of the intervention and feasibility must be considered as teachers already reported challenges implementing the whole-class component of the intervention within the proposed time frame. Including an additional intervention component in an already crowded curriculum, with limited time and resources, may impact the feasibility and therefore uptake of the intervention. Furthermore, the way in which this intervention component is delivered needs to be investigated. For example, whether small group instructional arrangements in or outside the classroom during school hours are best suited, or whether it would be more appropriately delivered after school or online with parent involvement. There are, of course, advantages and disadvantages with either approach. For example, conducting after school sessions with students on the autism spectrum and their parents, may provide students with the opportunity to reinforce and extend their learning and parents with insight into their child's learning, but may also cause challenges when students are required to generalise their learning to the school environment. The importance of maintaining an inclusive philosophy to education where the individual needs of all students are considered, while maintaining feasibility, however, must be at the forefront of our theoretical reasoning.

Environmental Factors Impacting the Delivery of School-Based Interventions

The original MSPA acknowledged the moderating and mediating impact students' environment has on their school participation. The resulting intervention, therefore, adopted a multi-modal approach to support students' school participation at a class, parent, and school

level. However, the inherent challenges in facilitating a multi-modal approach became apparent when conducting the feasibility study and highlighted how quickly the delivery of school-based interventions can be affected when environmental factors are at play. For example, at the time of the feasibility study, due to COVID–19 restrictions, parents were not permitted to be onsite at schools and whole-school events were limited due to social distancing requirements, which limited teachers' ability to invite parents to participate in intervention-specific activities. School events that had been cancelled due to school closures in the previous term had been pushed forward, which limited time available to organise and implement recommended whole-school activities. While the professional learning component of *In My Shoes* improved teachers knowledge of and confidence in delivering the intervention (see Chapter 7), fidelity checks revealed that teachers struggled to deliver some components of the intervention in their entirety (e.g., sending information handouts to parents on a weekly basis and completing lesson content within recommended time frame) due to the availability of school resources (e.g., time, access to an education assistant). Furthermore, schools' culture towards the inclusion of students with additional needs impacted their willingness to participate in the feasibility study and their enthusiasm to incorporate activity ideas at a whole-school level. Although intended as a multi-modal intervention, in reality, class, parent and school components of *In My Shoes*, operated to an extent, as isolated silos rather than coordinated action between parents, teachers, and school leadership staff. This highlights that regardless of factors intrinsic to the student (i.e., activity competence, sense of self, school connectedness and preferences), if students' school environments are not supportive, their participation trajectory will be limited.

Weekly online and in-person fidelity checks during the feasibility study were crucial in identifying components of the intervention that were not delivered as intended and that could be improved in future research; enhancing the internal validity of the study (Bellg et al.,

2004; Horner, Rew, & Torres, 2006). The parent and whole-school component of *In My Shoes* was purposefully less prescriptive than the whole-class component to provide schools with flexibility in the way these components were delivered. In hindsight, this relied on schools already having a positive culture and inclusive policies and practices in implementing supports which, in turn, perpetuated a lack of ownership and accountability and, therefore, implementation of these components. A study by Carrington et al. (2021) provides insights into mechanisms to facilitate implementation of whole-school approaches to improve school connectedness. In this study, the Index for Inclusion (Booth & Ainscow, 2002) was used to engage adolescent students and school staff involved in a multi-layered school connectedness intervention to review, develop and adapt supports aimed to improve students' school connectedness. Reported benefits to this approach included schools having increased awareness of their school community and connections with families, staff and students. Students developed positive relationships with school staff and experienced greater connection with peers through involvement in leadership roles.

As outlined in the MSPA, school connectedness is a key construct impacting the school participation of students on the autism spectrum. Arguably more needs to be done at a systemic level to support student school connectedness before class-based supports are introduced. The whole-school component of *In My Shoes* could be expanded to include more detailed step-by-step information for schools to implement action focused whole-school strategies to promote student school participation. This could involve forming a school connectedness advisory committee to explore the unique school participation experiences of students in their school community. The advisory committee could also help to identify information that students would like to receive to support their understanding of autism and neurodiversity and, more generally, to support their participation and connection to school.

Schools could then use this information to tailor whole-school activity ideas to suit the specific needs of students in their school community.

These proposed adaptations, however, need to be considered with feasibility in mind. The process of review, development and change took the school involved in the Carrington et al. (2021) study over a year to complete; time and resources that many schools simply do not have. Furthermore, the school involved in the Carrington et al. (2021) study was a high performing school that encouraged students to excel in academic, culture, sport and citizenship and was known for its inclusive approach to supporting students with disabilities. Many schools, particularly those from lower socio-economic areas, may not be as willing or able to engage in this process as they may be struggling to meet students most basic support needs. Incentives from state and federal governments are required to motivate schools to prioritise students' school connectedness by providing additional funding and resources to implement suggested changes. However, to rationalise these resources, governments need strong evidence that supports the effectiveness of school-based interventions targeting students' school connectedness and the impact these can have on students' social, emotional and academic outcomes. Future research is therefore required to continue to gather this evidence in school settings to support proposed policy change at a government level.

Strengths and Limitations

This study has methodological strengths as well as limitations. The strengths of the research design are outlined below:

- A theoretical understanding of the likely process of change was developed from the outset, by drawing on existing evidence and theory, and new primary research as recommended in UKMRC guidelines.

- All students on the autism spectrum included in the feasibility study had been formally diagnosed by a multi-disciplinary team of clinicians including a paediatrician, psychologist, and speech pathologist as per West Australian guidelines.
- Strict adherence to eligibility criteria for the feasibility study meant that the study population (i.e., students on the autism spectrum) was relatively homogenous.
- A blinded independent rater scored 40% of BASC 3 – SOS video observations and was blinded to all aspects and purposes of the study to minimise bias.
- Ecologically valid data was collected through use of ESM to reflect on the school participation experiences of students on the autism spectrum.
- Several strategies were adopted to enhance credibility, transferability and dependability when analysing qualitative data such as peer debriefing, member checking, audit trail, field notes, and use of a reflexive journal throughout the research process.
- The description of the intervention in Chapter 5 adheres to the TIDieR checklist (see Appendix G14) and guide (Hoffman et al., 2014), which is integral in ensuring researchers can replicate and/or build on research findings.
- Consumers and stakeholders were involved across all phases of research, including the development of intervention resources.

Although every effort was taken to ensure the scientific rigor of the studies contained in this thesis, there were a number of limitations. The limitations of the research are described below:

- The small sample size of the feasibility study may limit generalisability of findings to the broader population of students on the autism spectrum.

- The sample of schools involved in the feasibility study volunteered to participate and may have already had a positive school culture relating to the inclusion of students with additional needs, which may have influenced results positively.
- Students, parents, teachers, and school leadership staff may have answered surveys in a manner that would be viewed favourably by the research team. This may have been particularly relevant for students, as teachers were responsible for administering pre-post questionnaires. The following steps were taken to minimise social desirability bias: ensuring intervention feedback surveys were anonymous; using online survey platforms for parent, teacher, and school leadership surveys; framing questions in a positive or neutral light; and providing teachers with scripts on how to explain surveys in a way that students would be more likely to share honest answers.
- Students on the autism spectrum and other members of the autism community (e.g., friends, family members) could have been involved more in phase 1 and 2 to inform the development of intervention resources.
- External factors, such as COVID-19 and resulting school closures and social distancing requirements, led to an unexpected change in design of research and limited implementation of the parent and whole school component of the intervention.

Future Research and Practice Implications

Several recommendations for future research can be made based on findings from studies contained in this thesis. Firstly, the existing *In My Shoes* intervention should be adapted based on feedback received from parents, teachers, and students (e.g., simplify worksheets, incorporate more technology into lesson plans, condense parent information handouts, expand content to include more grade levels) and then piloted in a larger number of schools. If this shows promising results, an RCT may be suitable to further test the intervention's effectiveness (Campbell et al., 2007).

Separate studies could then broaden *In My Shoes* eligibility criteria to include other student populations such as students with social challenges without a formal diagnosis of autism and other diagnoses such as Attention Deficit Hyperactivity Disorder (ADHD). The intervention would need to be adapted based on literature to ensure the intervention is appropriate for these student populations and tested for feasibility and effectiveness in small samples before larger studies are conducted.

Striking a balance between data collection procedures that are thorough but also feasible should be a priority in future studies. Recommended changes to outcome measures and data collection procedures include:

- reducing the number of paper-based outcome measures to minimise student fatigue and teacher burden;
- using online platforms to administer outcome measures to maximise survey completion and streamline data collection;
- selecting student measures with consistent response formats (e.g., number and labelling of Likert scales) wherever possible to maximise comprehensibility and minimise response error;
- conducting qualitative interviews with a select number of typically developing peers to supplement quantitative data;
- measuring outcomes mid-term to mid-term to minimise teacher burden and the impact of environmental factors (e.g., availability of school resources in the first and final week of term) on study findings;
- providing more in-depth ESM training to students on the autism spectrum to support them to respond to emotion-specific items;

- providing students on the autism spectrum with the opportunity to practice using smart devices and completing ESM surveys prior to data collection to troubleshoot any challenges;
- adapting emotion-specific ESM items to use a dichotomous rather than a continuous scale; and
- adapting emotion-specific ESM items to be context and activity specific, rather than asking students to reflect on their emotions more generally.

Summary

This research makes an important contribution to the evidence base of autism, school-based intervention research and intervention development through the development of a feasible and appropriate school-based intervention that shows promise in improving the school participation and connectedness of primary school students on the autism spectrum and their typically developing peers. The opportunity to build skills in an ecologically valid social context aligns with an inclusive philosophy of education; supporting *all* students to participate to their fullest potential and feel accepted, respected and included in their mainstream school environment.

Prior to this research, limited school-based interventions existed that specifically aimed to increase the school participation and connectedness of primary school students on the autism spectrum (Allen et al., 2016; Centers for Disease Control and Prevention, 2009). The research contained in this thesis attempted to address identified limitations in existing interventions and was deemed an appropriate approach for students on the autism spectrum and their parents, as well as the teachers and school leaders who support them.

The UKMRC guidelines for developing and evaluating complex interventions were used throughout this research to develop and evaluate the feasibility of *In My Shoes*. The intervention development process was clearly articulated and documented and co-designed

and co-produced with students, parents, educators, researchers and clinicians as recommended in the UKMRC (Campbell et al., 2000; Campbell et al., 2007; Craig et al., 2019) and *Engagement Framework* (2018) guidelines.

Findings from the feasibility study are encouraging, suggesting *In My Shoes* is a feasible and appropriate intervention, and shows promise in improving the self-report school engagement of all student participants, as well the classroom participation and subjective school experiences of students on the autism spectrum. The intervention targets peers, key social partners of students on the autism spectrum, by providing peers with necessary skills to support the participation and inclusion of students on the autism spectrum. Benefits to peers exceeded expectations, thus reinforcing the benefits of peer mediated instructional arrangements, not only for students on the autism spectrum, but also their typically developing peers. Involving parents and whole-schools in the intervention was challenging but necessary and supported the shift in perceptions that students' school participation occurs in isolation.

The research provided useful insights into ways the intervention can be adapted to better equip teachers and schools to implement parent and whole-school components. Several recommendations were also made for future research, such as measuring outcomes mid-term to mid-term to minimise teacher burden and the impact of environmental factors on study findings. Conducting research that aims to foster participation by improving students' interpersonal empathy and ability to display behaviours that help others participate and feel included at school, is a step forward in minimising the long-term documented implications of reduced school participation and connectedness on student outcomes; thus helping to promote a more supportive and inclusive community that is understanding, accepting and supportive of differences.

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Copyright Statement

Every reasonable effort has been made to acknowledge the owners of the copyright material used in this thesis. The original authors of the questionnaires and the family of Participation and Related Constructs (fPRC) were contacted and written approval was obtained for their use in the PhD research. I would be pleased to hear from any copyright owners who has been omitted or incorrectly acknowledged.

Signed:

Date: 7th September 2021

Appendices

Appendix A: Written Permission to Reprint fPRC from Christine Imms and MacKeith Press

On 5 Jan 2019, at 12:47 pm, Amy Hodges <amy.hodges@curtin.edu.au> wrote:

Hi Christine,
Thank-you very much for allowing us to use the graphic, I have contacted MacKeith press to seek copyright permission as requested.
I had the pleasure of meeting one of your colleagues recently at ASFA in the Gold Coast, Dr. Kate Simpson. I am very much looking forward to reading your upcoming qualitative papers measuring students perceived participation.
I will be sure to send you a copy of the paper when it is published,
Kind regards,
Amy

Amy Hodges
BSc (Occupational Therapy), Hons
Clinical Professional Fellow; Sessional Academic; PhD Candidate
School of Occupational Therapy, Social Work and Speech Pathology

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Email | amy.hodges@curtin.edu.au
Web | <http://curtin.edu.au>

On 3 Jan 2019, at 1:14 pm, Christine Imms <Christine.Imms@acu.edu.au> wrote:

Dear Amy,
Your work sounds really interesting and I am happy for you to use the graphic. You will though, have to seek copyright permission from MacKeith press - there is a simple on line process and it is quick to do.
I'd love to read your paper, so I'll look out for it.
Cheers Christine

Christine Imms
Professor of Occupational Therapy | Head of Allied Health
Australian Catholic University

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T: +61 3 9953 3404 E: christine.imms@acu.edu.au W: www.acu.edu.au

On 2 Jan 2019, at 12:09 pm, Amy Hodges <amy.hodges@curtin.edu.au> wrote:

Dear Christine ,
My name is Amy Hodges and I am an occupational therapist and PhD Candidate in the School of Occupational Therapy, Social Work and Speech Pathology at Curtin University. I am writing to you to seek your permission to use the family of participation-related-constructs graphic in a manuscript we (myself, Annette Joosten, Helen-Bourke Taylor and Reinie Cordier) are planning to submit to the Journal of School Psychology. The manuscript is entitled "Expert consensus on the development of a school based intervention to improve the school participation and connectedness of elementary students with ASD: A Delphi study". In the Delphi, we asked expert participants questions relating to the application of the fPRC to students with ASD in mainstream primary schools. Findings from the study have helped inform the theoretical rationale as well as the content, delivery and feasibility of the intervention that I am developing as part of my PhD. We feel it will help the reader to understand the fPRC if they can see the graphic within the paper. Your assistance is greatly appreciated,
Kind regards,

Amy Hodges
BSc (Occupational Therapy), Hons
Clinical Professional Fellow; Sessional Academic; PhD Candidate
School of Occupational Therapy, Social Work and Speech Pathology

From: Admin <admin@mackeith.co.uk>
Sent: Wednesday, January 9, 2019 9:42:15 PM
To: Amy Hodges <amy.hodges@curtin.edu.au>
Subject: RE: Copyright Permission Request

Dear Amy,

Many thanks for your message. I am sorry for the delayed response. We are very happy to grant you permission to use this figure, as long as a full acknowledgement to the original source is included. Good luck with the manuscript!

Kind Regards,

Rosie Outred
Editorial Assistant

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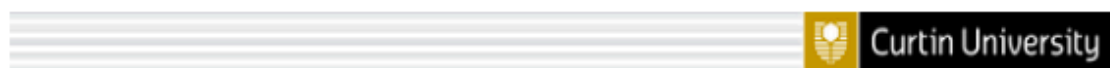


Copyright Permission Request

Fieldset

Email:	amy.hodges@curtin.edu.au
Address:	Kent Street Bentley, Western Australia 6102 Australia
Details of your request:	<p>My name is Amy Hodges and I am an occupational therapist and PhD Candidate in the School of Occupational Therapy, Social Work and Speech Pathology at Curtin University. I am writing to you to seek your permission to use the family of participation-related-constructs graphic in a paper published in the Developmental Medicine and Child Neurology journal by Christine Imms and colleagues entitled "Participation, both a means and an end: a conceptual analysis of processes and outcomes in childhood disability" (page 19).</p> <p>Christine Imms has already provided permission via email but asked that I seek permission from MacKeith press as well. We (Annette Joosten, Reinie Cordier and Helen Bourke-Taylor and myself) are planning to submit the manuscript entitled "Expert consensus on the development of a school based intervention to improve the school participation and connectedness of elementary students with ASD: A Delphi study" to the Journal of School Psychology, and will feature the fPRC figure detailed on page 19 of the aforementioned article. Full credit will be given to the original source. Please confirm in writing that permission is granted.</p> <p>Email response from Christine Imms: Dear Amy, Your work sounds really interesting and I am happy for you to use the graphic. You will though, have to seek copyright permission from MacKieth press - there is a simple on line process and it is quick to do. I'd love to read your paper, so I'll look out for it. Cheers Christine</p>
Upload any supporting details here:	http://www.mackeith.co.uk/wp-content/uploads/2019/01/Screen-Shot-2019-01-05-at-9.40.11-am.png
Checklist:	The title and author, ISBN, The formats you are requesting for reproduction (print, electronic), Figure or page numbers as appropriate to identify material requested, Lanugage requested, Details of how the material will be used

Appendix B: Curtin University Human Research Ethics Committee and Catholic Education Western Australia Ethics Approvals



Office of Research and Development

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22-Jul-2016

Name: Annette Joosten
Department/School: School of Occupational Therapy and Social Work
Email: A.Joosten@curtin.edu.au

Dear Annette Joosten

RE: Ethics approval
Approval number: HRE2016-0150

Thank you for submitting your application to the Human Research Ethics Office for the project **The development and evaluation of a school-based intervention for improving participation in school occupations and sense of school connectedness for primary school students with Autism Spectrum Disorder..**

Your application was reviewed by the Curtin University Human Research Ethics Committee at their meeting on **05-Jul-2016**.

The review outcome is: **Approved**.

Your proposal meets the requirements described in National Health and Medical Research Council's (NHMRC) *National Statement on Ethical Conduct in Human Research (2007)*.

Approval is granted for a period of one year from **05-Jul-2016** to **04-Jul-2017**. Continuation of approval will be granted on an annual basis following submission of an annual report.

Personnel authorised to work on this project:

Name	Role
Joosten, Annette	CI
Cordier, Josef	Co-Inv
Bourke-Taylor, Helen	Co-Inv
Hodges, Amy	Student

Standard conditions of approval

1. Research must be conducted according to the approved proposal
2. Report in a timely manner anything that might warrant review of ethical approval of the project including:

- proposed changes to the approved proposal or conduct of the study
 - unanticipated problems that might affect continued ethical acceptability of the project
 - major deviations from the approved proposal and/or regulatory guidelines
 - serious adverse events
3. Amendments to the proposal must be approved by the Human Research Ethics Office before they are implemented (except where an amendment is undertaken to eliminate an immediate risk to participants)
 4. An annual progress report must be submitted to the Human Research Ethics Office on or before the anniversary of approval and a completion report submitted on completion of the project
 5. Personnel working on this project must be adequately qualified by education, training and experience for their role, or supervised
 6. Personnel must disclose any actual or potential conflicts of interest, including any financial or other interest or affiliation, that bears on this project
 7. Changes to personnel working on this project must be reported to the Human Research Ethics Office
 8. Data and primary materials must be retained and stored in accordance with the [Western Australian University Sector Disposal Authority \(WAUSDA\)](#) and the [Curtin University Research Data and Primary Materials policy](#)
 9. Where practicable, results of the research should be made available to the research participants in a timely and clear manner
 10. Unless prohibited by contractual obligations, results of the research should be disseminated in a manner that will allow public scrutiny; the Human Research Ethics Office must be informed of any constraints on publication
 11. Ethics approval is dependent upon ongoing compliance of the research with the [Australian Code for the Responsible Conduct of Research](#), the [National Statement on Ethical Conduct in Human Research](#), applicable legal requirements, and with Curtin University policies, procedures and governance requirements
 12. The Human Research Ethics Office may conduct audits on a portion of approved projects.

Special Conditions of Approval

This letter constitutes ethical approval only. This project may not proceed until you have met all of the Curtin University research governance requirements.

Should you have any queries regarding consideration of your project, please contact the Ethics Support Officer for your faculty or the Ethics Office at hrec@curtin.edu.au or on 9266 2784.

Yours sincerely



Dr Karen Heslop
Deputy Chair, Human Research Ethics Committee

29 March 2019

Mrs Amy Hodge
35 Essex Street
BAYSWATER WA 6053



Dear Mrs Hodge

THE DEVELOPMENT AND EVALUATION OF A SCHOOL-BASED INTERVENTION FOR IMPROVING PARTICIPATION IN SCHOOL OCCUPATIONS AND SENSE OF CONNECTEDNESS FOR PRIMARY SCHOOL STUDENTS WITH AUTISM SPECTRUM DISORDER (ASD) – CEWA REFERENCE RP2019/05

Thank you for your completed application received 12 February 2019, whereby this project will involve trialling and piloting the developed intervention in primary schools across the Perth metropolitan areas.

I give in principle support for the selected Catholic schools in Western Australia to participate in this valuable study. However, consistent with Catholic Education Western Australia (CEWA) policy, participation in your research project will be the decision of the individual principal and staff members. A copy of this letter must be provided to principals when requesting their participation in the research.

The conditions of CEWA approval are as follows:

1. A final list of the Catholic schools participating in this research project is to be provided to CEWA.
2. As your research project is being conducted for longer than one year, a completion of annual reports as well as a final report are to be forwarded to CEWA.

Responsibility for quality control of ethics and methodology of the proposed research resides with the institution supervising the research. CEWA notes that Curtin University Human Research Ethics Committee has granted permission for this research project until 22 March 2020 (Approval Number: HRE2016-0150).

Any changes to the proposed methodology will need to be submitted for CEWA approval prior to implementation. The focus and outcomes of your research project are of interest to CEWA. It is therefore a condition of approval that the research findings of this study are forwarded to CEWA.

Further enquiries may be directed to Jane Gostelow at jane.gostelow@cewa.edu.au or (08) 6380 5118.

I wish you all the best with your research.

Yours sincerely

Dr Debra Sayce
Executive Director



Appendix C: Parent and Educator Focus Groups

Appendix C1: Parent Participant Information Sheet and Consent Form

PARENT/CAREGIVER FOCUS GROUP

INFORMATION STATEMENT

HREC Project Number:	<i>HREC-2016-0150</i>
Project Title:	The development and evaluation of a school-based intervention for improving participation in school occupations and sense of school connectedness for primary school students with Autism Spectrum Disorder.
Principal Investigator:	Dr Annette Joosten
Student Investigator	Amy Hodges
Version Number:	Version 1
Version Date:	16.06.2016

What is the Project About?

There are increasing numbers of students with Autism Spectrum Disorder (ASD) enrolling in mainstream schools. Sometimes, students with ASD experience challenges in a mainstream school environment. We wish to investigate how students feel they belong: a term referred to as 'school connectedness'. Lack of school connectedness has been found to have an impact on students' mental health and wellbeing. Many programs aim to support students with ASD to develop their social skills but there is a gap in interventions that support students with the range of challenges they may experience across the school day. This project aims to develop and evaluate an intervention to improve the participation of students with ASD so they feel connected and included at school. The intervention will be run by the classroom teacher and be able to be incorporated into the curriculum. It will focus on supporting classmates to include students with ASD and help to empower teachers to build their capacity to include students with ASD in the classroom. The project will involve three Phases. Phase One will involve developing the intervention by reviewing the literature and talking with parents, teachers and researchers about what is important to include in the intervention and how it should be implemented. Phase Two will involve trialling the intervention in one classroom to get initial feedback. Phase Three will involve testing it in multiple schools to see whether it is effective, but also whether it is easy to use in a busy classroom environment.

Who is doing the Research?

The project is being conducted by Amy Hodges, under the supervision of Dr Annette Joosten, A/Prof Reinie Cordier and Dr Helen Bourke-Taylor. The results of this research project will be used by Amy Hodges to obtain a Doctor of Philosophy at Curtin University.

Why am I being asked to take part and what will I have to do?

You have been asked to take part in this study because you have a child with ASD and may be able to share your thoughts and opinions on what is important to consider for students with ASD in mainstream school, what

you think should be included in the intervention and how it should be implemented. Participation will involve attending and contributing to a focus group with other parents/carers with a child with ASD. You will be required to attend one focus group of about 1.5 hours in duration held in a mutually convenient location. We will ask you questions such as:

- What do you believe the main challenges are for students with ASD in mainstream school?
- How do you think students with ASD participation can be best supported in a classroom environment?
- How do you think student's participation can be best supported in the playground?

We will make an audio recording of the focus group so we can concentrate on what you have to say and not get distracted taking notes. After the focus group we will make a full written copy of the recording and we will use this information to help develop the intervention. You will not be able to be identified from the audio recording. All information will be de-identified. Information collected from focus groups will be analysed and only group information will be reported. There will be no cost to you for taking part in this research and you will not be paid for taking part.

Are there any benefits' to being in the research project?

There may be no direct benefit to you from participating in this research. Sometimes, people appreciate the opportunity to discuss their thoughts and opinions. We hope the results of this research will help us to develop an intervention that will improve the participation of students with ASD so that they feel like they belong and are included at school. We hope the results of this research will also add to knowledge of how we can support students with ASD in mainstream school.

Are there any risks, side effects, discomforts or inconveniences from being involved in the research project?

There are no foreseeable risks from this research project. We have been careful to make sure that the questions in the focus group do not cause you any distress. But, if you feel anxious about any of the questions you do not need to answer them. If the questions cause any concerns or upset you, we can refer you to a counsellor. Sometimes just thinking about the challenges your child experiences at school can be upsetting. If you choose not to be in this research but feel distressed from considering it then please contact your current service provider or the Samaritans Care Line (9381 5555) or Lifeline (13 11 14) for counselling support. Apart from giving up your time, we do not expect that there will be any risks or inconveniences associated with taking part in this study. Depending on the location of the focus group, we will provide you with reimbursement for the cost of parking or provide you with a parking permit.

Who will have access to my information?

Any information we collect will be treated as confidential and used only in this project unless otherwise specified. Only the research team will have access to the information. The information collected in this research will be re-identifiable which means we will remove identifying information on any data and replace it with a code. The code will be stored separately from the participant data. Hardcopies of the information we collect in this study will be kept under secure conditions in the School of Occupational Therapy and Social Work

at Curtin University. Electronic data will be password-protected and hard copy data (including audio tapes) will be in locked storage. It will be kept for a period of 7 years after the research has ended and then it will be destroyed. You have the right to access, and request correction of, your information in accordance with relevant privacy laws. The results of this research may be presented at conferences or published in professional journals. You will not be identified in any results that are published or presented. All care will be taken to maintain privacy and confidentiality of any information shared at a focus group or group discussion. Participants will be reminded before and after the focus group that information discussed in the focus group is confidential and must not be discussed outside of the group.

Will you tell me the results of the research?

We will send you a summary of the findings from the focus group and detail how these findings will contribute towards the development of the intervention. You should receive these results within 3 months of participating in the research. We will also make the results available through publication in scientific peer reviewed journals.

Do I have to take part in the research project?

Taking part in a research project is voluntary. It is your choice to take part or not. You do not have to agree if you do not want to. If you decide to take part and then change your mind, that is okay, you can withdraw from the project without prejudice. You do not have to give us a reason; just tell us that you want to stop. If you chose to leave the study we will use any information collected unless you tell us not to.

What happens next and who can I contact about the research?

If you decide to take part in this research we will ask you to sign the consent form. By signing it is telling us that you understand what you have read and what has been discussed. Signing the consent indicates that you agree to be in the research project. Please take your time and ask any questions you have before you decide what to do. You will be given a copy of this information and the consent form to keep. If you have any questions or would like to discuss the research further you can contact Amy Hodges on amy.hodges@curtin.edu.au or 0419383169.

Curtin University Human Research Ethics Committee (HREC) has approved this study (HREC number XX/XXXX). Should you wish to discuss the study with someone not directly involved, in particular, any matters concerning the conduct of the study or your rights as a participant, or you wish to make a confidential complaint, you may contact the Ethics Officer on (08) 9266 9223 or the Manager, Research Integrity on (08) 9266 7093 or email hrec@curtin.edu.au.

CAREGIVER FOCUS GROUP

CONSENT FORM

HREC Project Number:	HREC 2016 - 0150
Project Title:	<i>The development and evaluation of a school-based intervention for improving participation in school occupations and sense of school connectedness for primary school students with Autism Spectrum Disorder.</i>
Principal Investigator:	Annette Joosten
Student Investigator:	Amy Hodges
Version Number:	Version 1
Version Date:	16.06.2016

- I have read the information statement version listed above and I understand its contents.
- I believe I understand the purpose, extent and possible risks of my involvement in this project.
- I voluntarily consent to take part in this research project.
- I have had an opportunity to ask questions and I am satisfied with the answers I have received.
- I understand that this project has been approved by Curtin University Human Research Ethics Committee and will be carried out in line with the National Statement on Ethical Conduct in Human Research (2007).
- I understand I will receive a copy of this Information Statement and Consent Form.
- I consent to being audio-recorded.

Participant Name	
Participant Signature	
Date	

OPTIONAL CONSENT

<input type="checkbox"/> I do	<input type="checkbox"/> I do not	consent to be contacted about future research projects that are related to this project
<input type="checkbox"/> I do	<input type="checkbox"/> I do not	consent to the storage and use of my information in future ethically-approved research projects related to this (project/disease)

Declaration by researcher: I have supplied an Information Letter and Consent Form to the participant who has signed above, and believe that they understand the purpose, extent and possible risks of their involvement in this project.

Researcher Name	Amy Hodges
Researcher Signature	
Date	

Appendix C2: Parent Demographic Questionnaire

Parent / Caregiver Family and Demographic Survey

1. My gender is: (please ✓ one)

- ☐ Male
- ☐ Female

2. What is your age? (please ✓ one)

- ☐ Less than 15 years old
- ☐ 15-19 years
- ☐ 20-24 years
- ☐ 25-29 years
- ☐ 30-34 years
- ☐ 35-39 years
- ☐ 40-44 years
- ☐ 45-49 years
- ☐ 50-54 years
- ☐ 55-59 years
- ☐ 60 years and older

3. What is your present marital status? (please ✓ one)

- ☐ Never married
- ☐ Widowed
- ☐ Divorced
- ☐ Separated but not divorced
- ☐ Married
- ☐ Defacto

4. Are you of Aboriginal or Torres Strait Islander origin? (please ✓ one)

- ☐ No
- ☐ Yes Aboriginal
- ☐ Yes Torres Strait Islander.

5. Are you an Australian Citizen? (please ✓ one)

- ☐ Yes Australian Citizen
- ☐ No

6. Do you speak a language other than English at home? (please ✓ one)

- ☐ No English only
- ☐ Yes. Please specify _____

7. How many children are in your family? (please ✓ one)

- ☐ 1
- ☐ 2
- ☐ 3
- ☐ 4
- ☐ 5 or more. Please specify: _____

•

8. What is your relationship to your child? (please ✓ one)

- ☐ Mother
- ☐ Father
- ☐ Grandparent
- ☐ Step
- ☐ Parent
- ☐ Guardian
- ☐ Other. Please specify: _____

•

9. Do you have a child/ren with a developmental delay or a diagnosed disability? (please ✓ one)

- ☐ Yes. Please specify type and year of diagnosis: _____
- ☐ No

•

10. Are you currently receiving services or supports outside of school?

- ☐ Yes. Please specify: _____
- ☐ No

•

11. What year is your child in at school?

- ☐ Kindergarten
- ☐ Pre-Primary
- ☐ Year 1
- ☐ Year 2
- ☐ Year 3
- ☐ Year 4
- ☐ Year 5
- ☐ Year 6
- ☐ Year 7
- ☐ Year 8
- ☐ Year 9
- ☐ Year 10
- ☐ Year 11
- ☐ Year 12

•

12. What type of school does your child attend?

- ☐ Public
- ☐ Public with independent status
- ☐ Independent (Association of Independent Schools Western Australia)

- ☐ Catholic
- ☐ Other. Please specify: _____

•

13. How long have they been attending their current school?

- ☐ 0 – 1 years
- ☐ 1 – 3 years
- ☐ 3 – 5 years
- ☐ >5 years

14. How many schools have they attended in the last 5 years?

- ☐ 1
- ☐ 2
- ☐ 3
- ☐ 4
- ☐ More than 5. Please specify: _____

15. Does your child have an Individual Education Plan?

- ☐ Yes
- ☐ No.

16. Does your child have Education Assistant time?

- ☐ Yes. Please specify number of hours: _____
- ☐ No.

17. Briefly describe your child's level of communication.

18. Briefly describe your child's social skills.

19. Briefly describe your child's behaviour at school.

Thank-you for completing this survey.

Appendix C3: Parent Focus Group Guide

Parent / Caregiver Focus Group Questions

Aims & Objectives:

- To explore parents perceptions of school participation.
 - To explore parents perceptions of the main challenges students with Autism experience in their participation at school.
 - To explore parents perspectives on effective supports in schools for students with Autism.
 - To explore parents perspectives on their child's sense of school connectedness.
 - To explore parents recommendations regarding the content, implementation and delivery of the intervention?
-

Ask participants to complete consent form and demographic survey on arrival.

Welcome, thank-you for taking the time to be here today. Your perspective is important and valuable. What we discuss today will inform the development of a school-based intervention that aims to improve the participation of students with Autism so that they feel more connected and included at school.

1. Before we start –

- House keeping
- Break
- Parking reimbursement.
- Confidentiality
- Audio recording.
- Agenda
- Member checking

2. Introductions

- Introduce self, clinical experience, PhD project and proposed school-based intervention
- Outline purpose of focus group (see aims/objectives above)
- Ask participants to take turns introducing themselves and share information about their: child (name, age), child's school (schooling sector, year level, support needs) and child's current school experience.

3. Exploring school participation

- All kids at one time or another may find it difficult to participate at school – whether its completing classroom activities or getting involved in assembly or sport carnivals.
 - How would you define school participation?
 - Describe how your child currently participates in the: classroom, playground extra-curricular activities and/or school-wide activities.
 - Would you like their participation to change? If so, how?

- What have you found to support your child's participation?

4. Exploring sense of school connectedness

- All kids at one time or another may feel like they do not fit in or are not included at school. I am interested in how students with Autism feel connected and included at school. The term school connectedness refers to the extent to which students feel personally accepted, respected, included and supported by others at school. There are many factors that can influence a students' sense of school connectedness.
 - What does it mean for you, for your child to feel connected at school?
 - Describe your child's level of school connectedness.
 - Would you like their level of school connectedness to change? If so, how?
 - What do you think could help to improve your child's sense of school connectedness?

5. Exploring the school-based intervention

- The school-based intervention that is being developed as a result of this study will include weekly modules that address core concepts and skills and provide practical strategies to support students to participate, and help others to participate. It will be developed based on the challenges students with Autism experience in mainstream primary school. The intervention will focus on building skills of peers to be natural mentors or supports to students that may need additional support.
 - What are your immediate thoughts about the intervention?
 - Do you have any reservations, and if so – what are they?
- A part of the intervention will involve building students understanding strengths and differences.
 - Is your child aware of their diagnosis of ASD? Explain.
 - Are your child's peers aware of their diagnosis? If so, how and when was this explored?
 - Do you feel it's important for peers to be aware of the student's diagnosis? If so / not, why?
 - Do you think ASD specifically should be addressed as part of the intervention? If so, how do you think this could be best addressed?
 - How do you think peers may be able to support your child in the classroom and playground?
- Some people would say the culture or ethos of the school could impact the way in which the intervention is received.
 - What are your thoughts? Do you have any ideas on how to approach this?
- The school-based intervention will aim to involve families, which may include information sheets or activities to complete at home.
 - What do you think about this?
 - How do you think families could be best involved?
 - Do you have any recommendations about how this could be implemented?
- What key recommendations would you give to someone that is designing a school-based intervention for students with ASD and their peers?

6. Conclude

- Member checking (butchers paper).

- Send summary of findings from parent focus groups and how these findings will contribute towards the development of the intervention.
- If you think your school would be interested in participating in a trial or pilot of the intervention once its developed, please write your name and school down on piece of paper. Explain ethics approval.

Appendix C4: Educator Participant Information Sheet and Consent Form

TEACHER/ SCHOOL LEADER FOCUS GROUP

INFORMATION STATEMENT

HREC Project Number:	<i>HREC-2016-0150</i>
Project Title:	The development and evaluation of a school-based intervention for improving participation in school occupations and sense of school connectedness for primary school students with Autism Spectrum Disorder.
Principal Investigator:	Dr. Annette Joosten
Student Investigator:	Amy Hodges
Version Number:	Version 1
Version Date:	16.06.2016

What is the Project About?

There are increasing numbers of students with Autism Spectrum Disorder (ASD) enrolling in mainstream schools. Sometimes, students with ASD experience challenges in a mainstream school environment. We wish to investigate how students feel they belong: a term referred to as 'school connectedness'. Lack of school connectedness has been found to have an impact on students' mental health and wellbeing. Many programs aim to support students with ASD to develop their social skills but there is a gap in interventions that support students with the range of challenges they may experience across the school day. This project aims to develop and evaluate an intervention to improve the participation of students with ASD so they feel connected and included at school. The intervention will be run by the classroom teacher and be able to be incorporated into the curriculum. It will focus on supporting classmates to include students with ASD and help to empower teachers to build their capacity to include students with ASD in the classroom. The project will involve three Phases. Phase One will involve developing the intervention by reviewing the literature and talking with parents, teachers and researchers about what is important to include in the intervention and how it should be implemented. Phase Two will involve trialling the intervention in one classroom to get initial feedback. Phase Three will involve testing it in multiple schools to see whether it is effective, but also whether it is easy to use in a busy classroom environment.

Who is doing the Research?

The project is being conducted by Amy Hodges, under the supervision of Dr Annette Joosten, A/Prof Reinie Cordier and Dr Helen Bourke-Taylor. The results of this research project will be used by Amy Hodges to obtain a Doctor of Philosophy at Curtin University.

Why am I being asked to take part and what will I have to do?

You have been asked to take part in this study because you are a teacher or school leader who has experience working with students with ASD and may be able to share your thoughts and opinions on what you think should be included in the intervention and how it should be implemented in the school environment. Participation will involve attending and contributing to a focus group with other teachers and school leaders. You will be required to attend one focus group of about 1.5 hours in duration held in a mutually convenient location outside of school hours. We will ask you questions about what you think the main challenges are for students with ASD and how these could be appropriately supported in the classroom and playground environment. We will make an audio recording of the focus group so we can concentrate on what you have to say and not get distracted taking notes. After the focus group we will make a full written copy of the recording and we will use this information to help develop the intervention. You will not be able to be identified from the audio recording. All information will be de-identified. Information collected from focus groups will be analysed and only group information will be reported. There will be no cost to you for taking part in this research and you will not be paid for taking part.

Are there any benefits' to being in the research project?

There may be no direct benefit to you from participating in this research. Sometimes, people appreciate the opportunity to discuss their thoughts and opinions. We hope the results of this research will help us to develop an intervention that will improve the participation of students with ASD so that they feel like they belong and are included at school. Getting your thoughts and opinions will help to make sure the intervention will be usable and appropriate in the school environment. We hope the results of this research will also add to knowledge of how we can support students with ASD in mainstream school.

Are there any risks, side-effects, discomforts or inconveniences from being involved in the research project?

There are no foreseeable risks from this research project. We have been careful to make sure that the questions in the focus group do not cause you any distress. But, if you feel anxious about any of the questions you do not need to answer them. If the questions cause any concerns or upset you, we can refer you to a counsellor. We will not ask you questions about specific policies at your school or students in your classroom. The information will not be shared with your school and will not impact your employment. Apart from giving up your time, we do not expect that there will be any risks or inconveniences associated with taking part in this study. Depending on the location of the focus group, we will provide you with reimbursement for the cost of parking or provide you with a parking permit.

Who will have access to my information?

Any information we collect will be treated as confidential and used only in this project unless otherwise specified. Only the research team will have access to the information. The information collected in this research will be re-identifiable which means we will remove identifying information on any data and replace it

with a code. The code will be stored separately from the participant data. Hardcopies of the information we collect in this study will be kept under secure conditions in the School of Occupational Therapy and Social Work at Curtin University. Electronic data will be password-protected and hard copy data (including audio tapes) will be in locked storage. It will be kept for a period of 7 years after the research has ended and then it will be destroyed. You have the right to access, and request correction of, your information in accordance with relevant privacy laws. The results of this research may be presented at conferences or published in professional journals. You will not be identified in any results that are published or presented. All care will be taken to maintain privacy and confidentiality of any information shared at a focus group or group discussion. Participants will be reminded before and after the focus group that information discussed in the focus group is confidential and must not be discussed outside of the group.

Will you tell me the results of the research?

We will send you a summary of the findings from the focus group and detail how these findings will contribute towards the development of the intervention. You should receive these results within 3 months of participating in the research. We will also make the results available through publication in scientific peer reviewed journals.

Do I have to take part in the research project?

Taking part in a research project is voluntary. It is your choice to take part or not. You do not have to agree if you do not want to. If you decide to take part and then change your mind, that is okay, you can withdraw from the project. You do not have to give us a reason; just tell us that you want to stop. If you chose to leave the study we will use any information collected unless you tell us not to.

What happens next and who can I contact about the research?

If you decide to take part in this research we will ask you to sign the consent form. By signing it is telling us that you understand what you have read and what has been discussed. Signing the consent indicates that you agree to be in the research project. Please take your time and ask any questions you have before you decide what to do. You will be given a copy of this information and the consent form to keep. If you have any questions or would like to discuss the research further you can contact Amy Hodges on amy.hodges@curtin.edu.au or 0419383169.

Curtin University Human Research Ethics Committee (HREC) has approved this study (HREC number XX/XXXX). Should you wish to discuss the study with someone not directly involved, in particular, any matters concerning the conduct of the study or your rights as a participant, or you wish to make a confidential complaint, you may contact the Ethics Officer on (08) 9266 9223 or the Manager, Research Integrity on (08) 9266 7093 or email hrec@curtin.edu.au.

TEACHER AND SCHOOL LEADER

CONSENT FORM

HREC Project Number:	HREC2016-0150
Project Title:	<i>The development and evaluation of a school-based intervention for improving participation in school occupations and sense of school connectedness for primary school students with Autism Spectrum Disorder.</i>
Principal Investigator:	Dr. Annette Joosten
Student Investigator	Amy Hodges
Version Number:	<i>Version 1</i>
Version Date:	16.06.2016

- I have read the information statement version listed above and I understand its contents.
- I believe I understand the purpose, extent and possible risks of my involvement in this project.
- I voluntarily consent to take part in this research project.
- I have had an opportunity to ask questions and I am satisfied with the answers I have received.
- I understand that this project has been approved by Curtin University Human Research Ethics Committee and will be carried out in line with the National Statement on Ethical Conduct in Human Research (2007).
- I understand I will receive a copy of this Information Statement and Consent Form.
- I consent to being audio-recorded.

Participant Name	
Participant Signature	
Date	

OPTIONAL CONSENT

<input type="checkbox"/> I do	<input type="checkbox"/> I do not	consent to be contacted about future research projects that are related to this project
<input type="checkbox"/> I do	<input type="checkbox"/> I do not	consent to the storage and use of my information in future ethically-approved research projects related to this (project/disease)

Declaration by researcher: I have supplied an Information Letter and Consent Form to the participant who has signed above, and believe that they understand the purpose, extent and possible risks of their involvement in this project.

Researcher Name	Amy Hodges
Researcher Signature	
Date	

Appendix C5: Educator Demographic Questionnaire

Educator Focus Group Demographic Survey

20. My gender is: (please ✓ one)

- ☐ Male
- ☐ Female

21. What is your age? _____

22. What schooling sector do you work for currently? (please ✓ one)

- ☐ Department of Education (Independent Status)
- ☐ Catholic Education Office
- ☐ Association of Independent Schools Western Australia
- ☐ Private
- ☐ Other. Please specify: _____

•

23. What is your role? (please ✓ one)

- ☐ Teacher
- ☐ Deputy Principal
- ☐ Principal
- ☐ Learning Support Coordinator
- ☐ Other. Please specify: _____

24. How many years' experience do you have in this role? (please ✓ one)

- ☐ 0 – 1 years
- ☐ 1 – 3 years
- ☐ 3 – 5 years
- ☐ 5 – 7 years
- ☐ 7 – 9 years
- ☐ >10 years. Please specify: _____

•

25. How many years have you be working at your current school?

- ☐ 0 – 1 years
- ☐ 1 – 3 years
- ☐ 3 – 5 years
- ☐ 5 – 7 years
- ☐ 7 – 9 years
- ☐ 10 or more years. Please specify: _____

26. How many years' experience do you have working with students with Autism Spectrum Disorder (ASD)?

- ☐ 0 – 1 years
- ☐ 1 – 3 years
- ☐ 3 – 5 years
- ☐ 5 – 7 years
- ☐ 7 – 9 years
- ☐ >10 years. Please specify: _____

27. How many students with Autism Spectrum Disorder (ASD) have you worked with?

- ☐ 1
- ☐ 2
- ☐ 3
- ☐ 4
- ☐ More than 5. Please specify: _____

28. How many hours of general in-service training have you had in the past year?

- ☐ 0 – 5 hours
- ☐ 5 – 10 hours
- ☐ 10 – 15 hours
- ☐ 15 – 20 hours
- ☐ More than 20 hours. Please specify: _____

29. How many hours of ASD specific in-service training have you had in total?

- ☐ 0 – 5 hours
- ☐ 5 – 10 hours
- ☐ 10 – 15 hours
- ☐ 15 – 20 hours
- ☐ More than 20 hours. Please specify: _____

30. Have you worked in any of the other schooling sectors?

- ☐ Yes. Please specify: _____
- ☐ No.

31. Have you had experience working in an education support setting?

- ☐ Yes. Please specify number of years experience: _____
- ☐ No.

Thank-you for completing this survey

Appendix C6: Educator Focus Group Guide

Educator Focus Group Questions

Aim

- To explore educators perspectives of the main challenges students with Autism experience in their participation at school.
- To explore the factors impacting on the participation and connectedness of students with Autism in mainstream schools.
- To explore educators perspectives on effective supports in schools for students with Autism.
- To explore educators perspectives regarding the content, implementation and delivery of the intervention.

Ask participants to complete consent form and demographic survey on arrival.

Ask participants to write their name down on EOI list for trial and pilot during the break.

Welcome, thank-you for taking the time to be here today. Your perspective is important and valuable. What we discuss today will inform the development of a school-based intervention that aims to improve the participation of students with Autism so that they feel more connected and included at school.

1. Before we start

- House-keeping
- Break
- Confidentiality
- Audio recording
- Agenda
- Member checking
- Expressions of interest for Delphi, trial and feasibility study

2. Introductions

- Introduce self, clinical experience, PhD project and proposed school-based intervention
- Outline purpose of focus group (see aims/objectives above)
- Ask participants to take turns introducing themselves and share information about themselves (name, schooling sector, role, experience)

3. Exploring school participation and connectedness

- All kids at one time or another may find it difficult to participate, feel like they do not fit in or are not included at school. I am interested in how students with Autism participate and feel connected at school.
 - In your opinion, what is school participation?
 - What have you noticed are the main challenges students with ASD experience in their participation in at school?

- What are key factors that contribute towards these challenges (i.e. school, classroom and individual level)?
- How do you think this impacts upon their sense of connectedness at school?
- What do you think supports students with ASD to participate (classroom and playground)?
- How do you think peers may be able to support others students with ASD to participate (classroom and playground)?

4. Exploring the school-based intervention

- The school-based intervention that is being developed as a result of this study will include weekly modules that address core concepts and skills and provide practical strategies to support students to participate, and help others to participate. It will be developed based on the challenges students with Autism experience in mainstream primary school. It is envisaged that the school-based intervention will be teacher facilitated and will replace aspects of the Australian health curriculum.
 - *What are your initial thoughts or feelings about the intervention?*
 - What do you think are the most important aspects of participation for the intervention to address?
 - How do you think this would be best incorporated into the classroom routine?
 - Do you think ASD specifically should be addressed as part of the intervention? If so, how do you think this could be best addressed?
 - Do you envisage any challenges in implementing this type of intervention in the classroom? Explain.
 - What do you think would make the intervention easier to implement?
- It is envisaged there will also be pre-intervention workshops or training to support teachers to facilitate the intervention and utilise its resources.
 - What do you think the pre-workshops should cover?
 - What format do you think these workshops would be best delivered?
 - When do you think these workshops would be best completed?
- Some people would say the culture or ethos of the school could impact the way in which the intervention is received.
 - What are your thoughts? Do you have any ideas on how to approach or support this?
- The school-based intervention will aim to involve families, which may include information sheets or activities to complete at home.
 - What do you think about this?
 - How do you think families could be best involved?
 - Do you have any recommendations about how this could be implemented?
- What key recommendations would you give to someone that is designing a school-based intervention for students with ASD and their peers?

5. Conclude

- *Member checking – expect an email in the next 3-4 weeks with summary of findings from the focus group. Please respond by letting me know if you agree with the findings or whether you think that something needs to be changed or has been missed.*

Expressions of interest for Delphi, trial or feasibility study

Appendix D: Delphi

Appendix D1: Participant Information Sheet and Consent Form

DELPHI STUDY

INFORMATION STATEMENT

HREC Project Number:	<i>HREC-2016-0150</i>
Project Title	The development and evaluation of a school-based intervention for improving participation in school occupations and sense of school connectedness for primary school students with Autism Spectrum Disorder.
Principal Investigator:	<i>Dr. Annette Joosten</i>
Student Investigator:	<i>Amy Hodges</i>
Version Number:	<i>Version 1</i>
Version Date:	<i>16.06.2016</i>

What is the Project About?

There are increasing numbers of students with Autism Spectrum Disorder (ASD) enrolling in mainstream schools. Sometimes, students with ASD experience challenges in a mainstream school environment. We wish to investigate how students feel they belong: a term referred to as 'school connectedness'. Lack of school connectedness has been found to have an impact on students' mental health and wellbeing. Many programs aim to support students with ASD to develop their social skills but there is a gap in interventions that support students with the range of challenges they may experience across the school day. This project aims to develop and evaluate an intervention to improve the participation of students with ASD so they feel connected and included at school. The intervention will be run by the classroom teacher and be able to be incorporated into the curriculum. It will focus on supporting classmates to include students with ASD and help to empower teachers to build their capacity to include students with ASD in the classroom. The project will involve three Phases. Phase One will involve developing the intervention by reviewing the literature and talking with parents, teachers and researchers about what is important to include in the intervention and how it should be implemented. Phase Two will involve trialling the intervention in one classroom to get initial feedback. Phase Three will involve testing it in multiple schools to see whether it is effective, but also whether it is easy to use in a busy classroom environment.

Who is doing the Research?

The project is being conducted by Amy Hodges, under the supervision of Dr Annette Joosten, A/Prof Reinie Cordier and Dr Helen Bourke-Taylor. The results of this research project will be used by Amy Hodges to obtain a Doctor of Philosophy at Curtin University.

Why am I being asked to take part and what will I have to do?

We are looking for experts in the field of education, school aged service provision and intervention development for children with ASD. You have been asked to take part because you are a:

- Allied health professional with experience working with students with ASD in the school environment
- School aged service provider that has a model of service delivery whereby you consult in the school environment;
- Research academic with experience in ASD, education and/or intervention development;
- Leadership staff within the Department of Education, Catholic Education and Association of Independent Schools Western Australia.

You have been asked to take part because of your knowledge and expertise in the topic area. You will be asked to participate in a series of online questionnaires called a Delphi study. This will help us to obtain a consensus from experts in the field regarding components to be included in the intervention. The first questionnaire will include Likert scale and open-ended questions to get your opinions on the intervention. Subsequent questionnaires will include only Likert scale survey questions in order for us to reach a consensus on the most important aspects to include in the intervention. Responses to the questionnaires will be used to prioritise components for inclusion into the intervention. We will send you a summary of the responses and the outcome of each round of questionnaires via email or post. We will then ask you to respond to confirm whether you agree with the written document, or whether you would like anything changed. All information will be de-identified. Information collected from focus groups will be analysed and only group information will be reported. There will be no cost to you for taking part in this research.

Are there any benefits' to being in the research project?

There may be no direct benefit to you from participating in this research. Sometimes, people appreciate the opportunity to discuss their thoughts and opinions and share their expertise. We hope the results of this research will help us to develop an intervention that will improve the participation of students with ASD so that they feel like they belong and are included at school. We hope the results of this research will also add to knowledge of how we can students with ASD in mainstream school.

Are there any risks, side-effects, discomforts or inconveniences from being involved in the research project?

There are no foreseeable risks from this research project. Apart from giving up your time, we do not expect that there will be any risks or inconveniences associated with taking part in this study.

Who will have access to my information?

Any information we collect will be treated as confidential and used only in this project unless otherwise specified. Only the research team will have access to the information. The information collected in this research will be re-identifiable which means we will remove identifying information on any data and replace it with a code. The code will be stored separately from the participant data. Hardcopies of the information we collect in this study will be kept under secure conditions in the School of Occupational Therapy and Social Work

at Curtin University. Electronic data will be password-protected and hard copy data (including audio tapes) will be in locked storage. It will be kept for a period of 7 years after the research has ended and then it will be destroyed. You have the right to access, and request correction of, your information in accordance with relevant privacy laws. The results of this research may be presented at conferences or published in professional journals. You will not be identified in any results that are published or presented.

Will you tell me the results of the research?

We will send you a summary of the findings from the study and detail how these findings will contribute towards the development of the intervention. You should receive these results within 3 months of participating in the research. We will also make the results available through publication in scientific peer reviewed journals.

Do I have to take part in the research project?

Taking part in a research project is voluntary. It is your choice to take part or not. You do not have to agree if you do not want to. If you decide to take part and then change your mind, that is okay, you can withdraw from the project. You do not have to give us a reason; just tell us that you want to stop. If you chose to leave the study we will use any information collected unless you tell us not to.

What happens next and who can I contact about the research?

If you decide to take part in this research we will ask you to sign the consent form. By signing it is telling us that you understand what you have read and what has been discussed. Signing the consent indicates that you agree to be in the research project. Please take your time and ask any questions you have before you decide what to do. You will be given a copy of this information and the consent form to keep. If you have any questions or would like to discuss the research further you can contact Amy Hodges on amy.hodges@curtin.edu.au or 0419383169.

Curtin University Human Research Ethics Committee (HREC) has approved this study (HREC number 2016-0150). Should you wish to discuss the study with someone not directly involved, in particular, any matters concerning the conduct of the study or your rights as a participant, or you wish to make a confidential complaint, you may contact the Ethics Officer on (08) 9266 9223 or the Manager, Research Integrity on (08) 9266 7093 or email hrec@curtin.edu.au.

DELPHI STUDY
CONSENT FORM

HREC Project Number:	<i>HREC-2016-0150</i>
Project Title:	<i>The development and evaluation of a school-based intervention for improving participation in school occupations and sense of school connectedness for primary school students with Autism Spectrum Disorder.</i>
Principal Investigator:	<i>Dr. Annette Joosten</i>
Student Investigator	<i>Amy Hodges</i>
Version Number:	<i>Version 1</i>
Version Date:	<i>16.06.2016</i>

- I have read the information statement version listed above and I understand its contents.
- I believe I understand the purpose, extent and possible risks of my involvement in this project.
- I voluntarily consent to take part in this research project.
- I have had an opportunity to ask questions and I am satisfied with the answers I have received.
- I understand that this project has been approved by Curtin University Human Research Ethics Committee and will be carried out in line with the National Statement on Ethical Conduct in Human Research (2007).
- I understand I will receive a copy of this Information Statement and Consent Form.

Participant Name	
Participant Signature	
Date	

OPTIONAL CONSENT

<input type="checkbox"/> I do	<input type="checkbox"/> I do not	consent to be contacted about future research projects that are related to this project
<input type="checkbox"/> I do	<input type="checkbox"/> I do not	consent to the storage and use of my information in future ethically-approved research projects related to this (project/disease)

Declaration by researcher: I have supplied an Information Letter and Consent Form to the participant who has signed above, and believe that they understand the purpose, extent and possible risks of their involvement in this project.

Researcher Name	Amy Hodges
Researcher Signature	
Date	

Appendix D2: Round 1 Questionnaire

Expert consensus on the development of a school-based intervention to improve school participation

Start of Block: INFORMED CONSENT

CONSENT

Thank-you for participating.

This survey is for invited participants only. Before proceeding with this survey, you must consent to participate in this study. Please read the information below and respond accordingly.

I understand the aim of this Delphi study is to gain a consensus from experts in the field of Autism, education and/or intervention development on the:

- application of a framework of participation to students with Autism Spectrum Disorder (ASD) in mainstream primary schools and;
- the content, delivery and feasibility of a school-based intervention.

I consent to participate in this project, the details of which have been explained to me, and I have been sent (via email) a written information statement to keep.

I understand that:

- my participation will involve approximately three Delphi rounds completed via an online survey.
- my de-identified survey responses will be provided to other participants during the Delphi process.
- de-identified data from the surveys may be used by the researchers in publications (as described in the information statement).

I acknowledge that:

- taking part in this study is voluntary and I am aware that I can stop taking part at any time without explanation or prejudice.
- my name will not be used to identify my survey responses.

I consent to complete an online survey and for my response to be used for the purposes described above

☐ Yes (1)

☐ No (2)

End of Block: INFORMED CONSENT

Start of Block: ELIGIBILITY

ELIGIBILITY

The following questions ask you to confirm your eligibility to participate in this survey. If you have any questions or concerns, please email amy.hodges@curtin.edu.au.

Have you spent more than 5 years (full-time equivalent) in the last 10 years engaged with school aged students with ASD or activities related to school aged students with ASD?

For the purpose of this study:

- School aged student with ASD refers to children and adolescents aged between 4 and 18 years of age with a diagnosis of ASD as determined by the DSM 5 or a diagnosis of Autism, Asperger's, Pervasive Developmental Disorder Not Otherwise Specified (PDD-NOS) or high functioning Autism on the DSM IV.
- Activities related to school aged students with ASD could include:
 - Provision of clinical services (where approximately 50% or more of caseload is students aged 4 and 18 years with ASD)
 - Research (where approximately 50% or more of research activities relate to students aged 4 and 18 years with ASD).
 - Staff development/training, academic teaching, resource development or consultancy (where approximately 50% or more of professional activities relate to services for children aged 4 and 18 years with ASD).
 - Combination of the above.

☐ Yes (1)

☐ No (2)

End of Block: ELIGIBILITY

Start of Block: INSTRUCTIONS

INSTRUCTIONS

The survey should take **approximately 30 minutes to complete**, however this may vary depending on your responses.

All questions are mandatory.

Remember that **you can leave this survey (multiple times) and come back later to where you left off**, if you use the same computer and same web-browser each time. You do not have to click a "save" button, just close the survey window and use the link to open the survey up again later.

It is recommended that you **use a desktop computer** to complete the survey (not your mobile), as you will be required to open and refer to a document regularly throughout the survey.

Please make sure you read information carefully before responding to questions in the survey.

End of Block: INSTRUCTIONS

Start of Block: DEMOGRAPHICS AND PROFESSIONAL BACKGROUND

PART ONE - DEMOGRAPHICS AND PROFESSIONAL BACKGROUND

The purpose of this part of the survey is to gather information on the demographics of experts participating in the Delphi.

Please indicate gender

- ☐ Male (1)
 - ☐ Female (2)
 - ☐ Other (3)
 - ☐ Prefer not to say (4)
-

Please indicate age.

- ☐ 20-29 (1)
- ☐ 30-39 (2)
- ☐ 40-49 (3)
- ☐ 50-59 (4)
- ☐ 60-69 (5)
- ☐ 70-79 (6)
- ☐ >80 years (7)

What country do you live in?

- ☐ Australia (1)
- ☐ Hong Kong (2)
- ☐ United States (3)
- ☐ United Kingdom (4)
- ☐ South Africa (5)
- ☐ Canada (6)
- ☐ New Zealand (7)
- ☐ Singapore (8)
- ☐ Other, please specify (9) _____

Display This Question:

If What country do you live in? = Australia

Please indicate which state in Australia you live.

- ☐ Western Australia (1)
- ☐ Victoria (2)
- ☐ Northern Territory (3)
- ☐ South Australia (4)
- ☐ Tasmania (5)
- ☐ New South Wales (6)
- ☐ Queensland (7)

Please indicate the option(s) that best describe the sector(s) in which you are currently employed. Select a maximum of 2 options.

Service Provider (i.e. government or non-government school aged service provider) (1)

Education Sector (i.e. government or non-government education department) (2)

Private Practice/ Small Business (3)

University (4)

Currently a student (i.e. Masters or PhD) (5)

Other agency (i.e. government or non-government) (6)

Other, please specify (7) _____

Please indicate the option(s) that best describe your profession/role. Select all that apply.

Teacher (1)

Principal (2)

Deputy Principal (3)

Learning Support Coordinator (4)

Education Assistant (5)

Speech Pathologist (6)

Occupational Therapist (7)

Psychologist (8)

Case Manager (9)

Researcher / Academic (10)

School Aged Service Provider (11)

Other, please specify (12) _____

Please indicate your (completed) qualifications.

☐ Certificate (1)

☐ Diploma (or equivalent) qualification (2)

☐ Bachelor (or equivalent) degree, please specify (3)

☐ Masters degree, please specify (4) _____

☐ PhD (research) (5)

☐ Other, please specify (6) _____

Please indicate the total number of years (full time equivalent) you have of working experience.

- ☐ 0 - 1 years (1)
- ☐ 2 - 3 years (2)
- ☐ 4 - 5 years (3)
- ☐ 6 - 7 years (4)
- ☐ 8 - 9 years (5)
- ☐ >10 years, please specify (6) _____

Please indicate how many years' experience (full time equivalent) you have had working with school aged students with ASD or in activities related to school aged students with ASD.

- ☐ 5 - 7 years (1)
- ☐ 8 - 9 years (2)
- ☐ 10 - 11 years (3)
- ☐ 12 - 13 years (4)
- ☐ 14 - 15 years (5)
- ☐ 16 - 17 years (6)
- ☐ 18 - 19 years (7)
- ☐ >19 years, please specify (8) _____

Have you had experience in delivering evidence based standardised interventions (e.g. Alert Program, Secret Agent Society) to students with ASD in mainstream primary schools?

- ☐ Yes (1)
- ☐ No (2)

PART TWO - GENERAL QUESTIONS ABOUT ASD AND PARTICIPATION

The purpose of this part of the survey is to get your opinion on the participation of primary school students with ASD in mainstream schools. Your knowledge and experience in the area is extremely valued.

In your experience, what challenges do students with ASD experience in their participation in mainstream primary schools?

In the school in which you are currently involved, what processes and/or techniques do you use to promote the participation of students with ASD in mainstream primary schools?

Is there anything you can think of that would be useful to facilitate the participation of students with ASD in mainstream primary schools, that is not already in place or currently being offered?

PART THREE - THE FAMILY OF PARTICIPATION-RELATED CONSTRUCTS (fPRC) FRAMEWORK

The purpose of this part of the survey is to get your opinion on the application of the Family of Participation-Related Constructs (fPRC) framework, developed by Imms and colleagues¹, to primary school students with ASD in mainstream schools. The fPRC provides a framework for viewing participation that combines information about person and environmental factors that impact participation. It can be applied to any person experiencing difficulties with their participation (see Figure 1). In applying the fPRC, we can then think about how student and environmental factors can be addressed in a school-based intervention to improve school participation.

Figure 1: fPRC (a) person focused processes (b) environment-focused processes

Participation consists of two components – attendance (defined as ‘being there’¹) and involvement (defined as “the experience of participating while attending”¹). Intrinsic person related concepts that are related to participation but are not the same as participation include – activity competence, sense of self and preferences¹. These concepts are considered consequences or outcomes of participation as well as predictors of participation¹. They are separate from participation as they are not essential to participate (e.g., a student may not be particularly skillful in an area, but they persist to engage in an activity because they are motivated by it). The arrows represent active processes occurring between constructs or factors.

For further reading about the fPRC, please refer to:

- Imms, C., et al. (2015). "Participation: a systematic review of language, definitions and constructs used in intervention research with children with disabilities." *Developmental Medicine and Child Neurology* 58: 29-38. DOI: 10.1111/dmcn.12932.
- Imms, C., et al. 2016 . "Participation, both a means and an end: a conceptual analysis of processes and outcomes in childhood disability." *Developmental Medicine and Child Neurology* 59: 16-25. DOI: 10.1111/dmcn.13237.

Refer to Table 1 ([click here](#)) for definitions of fPRC constructs and an application of constructs to mainstream schools and primary school students with ASD. This information is based on current literature and evidence from focus groups with educators and parents conducted as part of this research project.

Note. Please print Table 1 or have a copy open on your computer while you complete the survey as you will need to refer to it regularly.

End of Block: THE FAMILY OF PARTICIPATION-RELATED CONSTRUCTS (fPRC) FRAMEWORK

Start of Block: QUESTIONS RELATING TO APPLICATION OF fPRC TO PRIMARY SCHOOL STUDENTS WITH ASD

Based on the information you have been provided, and your experience in ASD, do you agree that the fPRC can be applied to primary school students with ASD in mainstream schools?

- ☐ Strongly Agree (1)
- ☐ Agree (2)
- ☐ Neutral (3)
- ☐ Disagree (4)
- ☐ Strongly Disagree (5)

Display This Question:

If Based on the information you have been provided, and your experience in ASD, do you agree that th... = Strongly Disagree

Or Based on the information you have been provided, and your experience in ASD, do you agree that th... = Disagree

If you disagree or strongly disagree, please provide your reasoning here.

School connectedness refers to students’:

- feelings of acceptance, inclusion and belonging;
- feelings of respect and being respected;
- perception of academic support;
- perception of the quality of peer and teacher relationships and support;
- perception of discipline, order and fairness in the school;
- sense of safety at school; and
- the importance or value the student places on school.

We propose that students ‘*sense of school connectedness*’ should be considered as an additional element under involvement, when applying the fPRC to primary school students (see Figure 2).

Figure 2: New proposed element in fPRC under involvement

Based on your experience, and the information you have been provided, how important do you think school connectedness is for the participation of primary school students?

- ☐ Very Important (1)
- ☐ Important (2)
- ☐ Neutral (3)
- ☐ Of Little Importance (4)
- ☐ Not Important (5)

Display This Question:

If Based on your experience, and the information you have been provided, how important do you think... =
Of Little Importance

Or Based on your experience, and the information you have been provided, how important do you think... =
Not Important

If you selected 'of little importance' or 'not important', please provide your reasoning here.

When applying the fPRC to the participation of primary school students, school connectedness should be considered as a separate and additional element under involvement.

- ☐ Strongly Agree (1)
- ☐ Agree (2)
- ☐ Neutral (3)
- ☐ Disagree (4)
- ☐ Strongly Disagree (5)

Display This Question:

If When applying the fPRC to the participation of primary school students, school connectedness shou... = Disagree

Or When applying the fPRC to the participation of primary school students, school connectedness shou... = Strongly Disagree

If you disagree or strongly disagree, please describe if and where you think school connectedness fits into the fPRC.

School connectedness is already addressed in the Australian school curriculum.

- ☐ Strongly Agree (1)
- ☐ Agree (2)
- ☐ Neutral (3)
- ☐ Disagree (4)
- ☐ Strongly Disagree (5)

Display This Question:

If School connectedness is already addressed in the Australian school curriculum. = Strongly Agree

Or School connectedness is already addressed in the Australian school curriculum. = Agree

If you agree or strongly agree, please describe how you feel school connectedness is already addressed in the Australian curriculum.

Display This Question:

If you disagree or strongly disagree, please comment on where you think the gap is and how you think this could be addressed in a school-based intervention.

Please provide any comments you have about the concept of school connectedness described above and its application to the fPRC.

lease indicate your level of agreement with relationships illustrated in the fPRC as they apply to primary school students.

Student preferences influence and are influenced by school participation. For example, a student who prefers outdoor activities may be more likely to engage in sport at school. If the school, however, does not offer a range of sporting activities, the students preferences may not be met and they may be more likely to disengage.

- ☐ Strongly Agree (1)
- ☐ Agree (2)
- ☐ Neutral (3)
- ☐ Disagree (4)
- ☐ Strongly Disagree (5)

Display This Question:

If Student preferences influence and are influenced by school participation. For example, a student... = Disagree

Or Student preferences influence and are influenced by school participation. For example, a student... = Strongly Disagree

If you disagree or strongly disagree, please provide your reasoning here.

Students sense of self influences and is influenced by school participation. For example, a student who actively participates in classroom activities may perceive themselves as a valued and respected member of the class. A student who feels confident and satisfied may be more likely to engage.

- ☐ Strongly Agree (1)
- ☐ Agree (2)
- ☐ Neutral (3)
- ☐ Disagree (4)
- ☐ Strongly Disagree (5)

Display This Question:

If Students sense of self influences and is influenced by school participation. For example, a student who actively participates in classroom activities may perceive themselves as a valued and respected member of the class. A student who feels confident and satisfied may be more likely to engage.

Or Students sense of self influences and is influenced by school participation. For example, a student who actively participates in classroom activities may perceive themselves as a valued and respected member of the class. A student who feels confident and satisfied may be more likely to engage.

If you disagree or strongly disagree, please provide your reasoning here.

Students activity competence influences and is influenced by school participation. For example, a student who has good literacy may be more likely to actively engage in English class. Similarly, engaging in English class may lead to learning and skill development.

- ☐ Strongly Agree (1)
- ☐ Agree (2)
- ☐ Neutral (3)
- ☐ Disagree (4)
- ☐ Strongly Disagree (5)

Display This Question:

If Students activity competence influences and is influenced by school participation. For example, a... = Disagree

Or Students activity competence influences and is influenced by school participation. For example, a... = Strongly Disagree

If you disagree or strongly disagree, please provide your reasoning here.

Students preferences influence and are influenced by sense of self. For example, a student who has previously had negative experiences at school may be less confident and have lower self-esteem. Whereas, a student who feels supported by their peers and teachers and has previously had positive experiences at school, may be more likely to feel confident and satisfied at school.

☐ Strongly Agree (1)

☐ Agree (2)

☐ Neutral (3)

☐ Disagree (4)

☐ Strongly Disagree (5)

Display This Question:

If Students preferences influence and are influenced by sense of self. For example, a student who ha... = Disagree

Or Students preferences influence and are influenced by sense of self. For example, a student who ha... = Strongly Disagree

If you disagree or strongly disagree, please provide your reasoning here.

Students sense of self influences and is influenced by activity competence. For example, students with a positive sense of self may be more aware of their strengths and weaknesses and gravitate towards

activities they know they are good at. Whereas, students with a negative sense of self, may be less self aware, become frustrated and lose confidence when they cannot complete a task to the same standard as their peers.

☐ Strongly Agree (1)

☐ Agree (2)

☐ Neutral (3)

☐ Disagree (4)

☐ Strongly Disagree (5)

Display This Question:

If Students sense of self influences and is influenced by activity competence. For example, students... = Disagree

Or Students sense of self influences and is influenced by activity competence. For example, students... = Strongly Disagree

If you disagree or strongly disagree, please provide your reasoning here.

****New proposed relationship (see red arrow below). Student preferences influence and are influenced by activity competence.** For example, a student that has interest in a subject area, may spend more time on that subject and therefore gain more skills. Similarly, a student who has skills in a subject area might be more likely to prefer that subject.

☐ Strongly Agree (1)

☐ Agree (2)

☐ Neutral (3)

☐ Disagree (4)

☐ Strongly Disagree (5)

Display This Question:

If **New proposed relationship (see red arrow below). Student preferences influence and are influenc... =
Disagree

Or **New proposed relationship (see red arrow below). Student preferences influence and are influenc... =
Strongly Disagree

If you disagree or strongly disagree, please provide your reasoning here.

How important are intrinsic student constructs for the school participation of students with ASD?

	Very Important (1)	Important (2)	Neutral (3)	Of Little Importance (4)	Not Important (5)
This is the text that will display in the tooltip pop-up.Text to response to pop-up i.e. (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Sense of self - <i>i.e. intra-personal factors related to confidence, satisfaction, self esteem and self-determination.</i> (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Activity competence - <i>i.e. the students ability to execute an activity according to an expected standard.</i> (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Attendance - <i>i.e. turning up for school, being present in the classroom, attending school activities and taking part in school organised extra-curricular activities.</i> (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
This is the text that will display in the tooltip pop-up.Text to response to pop-up i.e. student interests or activities that hold meaning or are valued by the student. (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Display This Question:

If How important are intrinsic student constructs for the school participation of students with ASD? = This is the text that will display in the tooltip pop-up.Text to response to pop-up i.e. [Of Little Importance]

Or How important are intrinsic student constructs for the school participation of students with ASD? = This is the text that will display in the tooltip pop-up.Text to response to pop-up i.e. [Not Important]

Or How important are intrinsic student constructs for the school participation of students with ASD? = Sense of self - i.e. intra-personal factors related to confidence, satisfaction, self esteem and self-determination. [Of Little Importance]

Or How important are intrinsic student constructs for the school participation of students with ASD? = Sense of self - i.e. intra-personal factors related to confidence, satisfaction, self esteem and self-determination. [Not Important]

Or How important are intrinsic student constructs for the school participation of students with ASD? = Activity competence - i.e. the students ability to execute an activity according to an expected standard. [Of Little Importance]

Or How important are intrinsic student constructs for the school participation of students with ASD? = Activity competence - i.e. the students ability to execute an activity according to an expected standard. [Not Important]

Or How important are intrinsic student constructs for the school participation of students with ASD? = Attendance - i.e. turning up for school, being present in the classroom, attending school activities and taking part in school organised extra-curricular activities. [Of Little Importance]

Or How important are intrinsic student constructs for the school participation of students with ASD? = Attendance - i.e. turning up for school, being present in the classroom, attending school activities and taking part in school organised extra-curricular activities. [Not Important]

Or How important are intrinsic student constructs for the school participation of students with ASD? = This is the text that will display in the tooltip pop-up.Text to response to pop-up i.e. student interests or activities that hold meaning or are valued by the student. [Of Little Importance]

Or How important are intrinsic student constructs for the school participation of students with ASD? = This is the text that will display in the tooltip pop-up.Text to response to pop-up i.e. student interests or activities that hold meaning or are valued by the student. [Not Important]

If you responded 'of little importance' or 'not important' to any of the above, please provide your reasoning here.

There is currently a gap in the way intrinsic student factors (i.e. preferences, sense of self, activity competence, attendance and involvement) are addressed in mainstream primary schools.

- ☐ Strongly Agree (1)
- ☐ Agree (2)
- ☐ Neutral (3)
- ☐ Disagree (4)
- ☐ Strongly Disagree (5)

Display This Question:

If There is currently a gap in the way intrinsic student factors (i.e. preferences, sense of self, a... = Strongly Agree

Or There is currently a gap in the way intrinsic student factors (i.e. preferences, sense of self, a... = Agree

In your opinion, what are the gaps in the way intrinsic student factors are addressed in mainstream primary schools?

Display This Question:

If There is currently a gap in the way intrinsic student factors (i.e. preferences, sense of self, a... = Disagree

Or There is currently a gap in the way intrinsic student factors (i.e. preferences, sense of self, a... = Strongly Disagree

If you disagree or strongly disagree, please provide your reasoning here.

Based on your experience in ASD, and your understanding of the fPRC, do you feel there are any constructs that need to be removed, added or changed, when considering the school participation of students with ASD?

☐ Yes (1)

☐ No (2)

Display This Question:

If Based on your experience in ASD, and your understanding of the fPRC, do you feel there are any co... = Yes

Please comment on what you feel needs to be removed, added or changed.

Please provide any general comments you may have about ASD, participation and the application of the fPRC to primary school students with ASD.

Thank-you for taking the time to complete this survey. Your response has been recorded.

You will receive an email in approximately 4 to 6 weeks with a summary of findings from this round of the Delphi, and a link to the second survey.

Your ongoing input is very much appreciated. If you have any questions please contact the primary investigator (amy.hodges@curtin.edu.au).

If you would like to view the reference list, please [click here](#).

Hyperlink 1

Table 1: Definitions of key constructs of fPRC and application to mainstream school and students with ASD

Construct	Definitions according to Imms et al. (2016)	Application to mainstream school	Example of application to students with ASD. <i>NB. Information sourced from literature and focus groups and may not apply to all students with ASD</i>
Participation	Attending and being involved in life situations ^a	Attending and being involved in school situations [*] .	
Attendance	'being there' and measured as frequency of attending and/or the range or diversity of activities in which an individual takes part.	Students 'turning up' for school, being present in the classroom, attending school activities and extra-curricular activities.	<ul style="list-style-type: none"> • Higher rates of absenteeism, suspension and exclusion²; • More likely to be homeschooled³; • More frequent changes in schools⁴; and • Spend more time outside of the classroom than peers⁵.
Involvement	The experience of participation while attending that may include elements of engagement, motivation, persistence, social connection and affect.	The students experience of participation while attending school [*] .	<ul style="list-style-type: none"> • Perceive participation to be lower⁶; • Report feeling more bullied, less liked, less involved in interaction and less understood by teachers⁶; • Report greater loneliness⁷; and • Experience poorer peer relationships and are more vulnerable to social rejection and bullying than peers⁸.
Preferences	The interests or activities that hold meaning or are valued.	<p>Student interests or activities that hold meaning or are of value to the student[*].</p> <p>Preferences are established through interactions with people, past experiences at school and through positive associations with the school environment.</p>	<ul style="list-style-type: none"> • Often have previous negative experiences at school leading to reduced motivation, satisfaction and confidence⁹; • Often show a strong preference for routine and predictability which can cause anxiety at school¹⁰; • Sometimes prefer visual learning and respond well when information is presented visually; and • Behaviour and interests can disrupt school participation and lead to peer rejection⁹.
Activity competence	The ability to execute the activity being undertaken according to an expected standard which includes cognitive, physical and affective skills and abilities. Activity competence can be	The student's ability to execute an activity being undertaken according to an expected standard at school [*] .	<p>Students with ASD:</p> <ul style="list-style-type: none"> • Spend more time engaged in solitary behaviours, purposeless or no activity¹¹. • Report difficulties with handwriting and academic workload¹². • Require a high level of support from education assistants¹³. • Have difficulties with executive functioning skills¹⁴. • Can be hesitant to participate without direction or prompting⁵.

	measured as capacity, capability or performed skill.		
Sense of self	Intrapersonal factors related to confidence, satisfaction, self-esteem and self-determination.	Intrapersonal factors related to confidence, satisfaction, self-esteem and self-determination when participating in school work and related school activities.	Students with ASD: <ul style="list-style-type: none"> • Report lower levels of self-esteem, mental health difficulties and suicidal feelings and self-harming behaviour⁴. • Often experience a negative perception of differences and have a desire to fit in⁵.
Context	Setting for activity participation that includes people, place, activity, objects and time ^b	People, places, activities, objectives and time related to school environment. Factors influencing school participation*.	<ul style="list-style-type: none"> • Busy classrooms, lack of structure during break times and constant transition and change throughout the day can make school a stressful place for students with ASD⁵. • Reported barriers to school participation for students with ASD include: <ul style="list-style-type: none"> - lack of in-service ASD specific teacher training^{15,16}; - poor school culture relating to the inclusion of students with additional needs^{9, 18}; - lack of peer and teacher awareness and understanding of ASD^{2, 4, 20-23} and - a lack of modification to the curriculum, social and physical environment⁴.
Environment	Broad, objective social and physical structures in which we live.	Students' sit within the context of their family and broader community environment. Family factors influencing school participation*. Community factors influencing school participation*.	Parents of students with ASD: <ul style="list-style-type: none"> • perceive their child to have restricted participation and disrupted educational trajectories⁹. • often actively try to influence their child's school participation but feel they have little control⁹. • are often forced to relinquish employment to home school their child or be available to support their child at school placing additional financial pressure on the family⁹. • • There is still a general lack of understanding of ASD in the broader community caused by misinformation, misleading stereotypes and negative stigma associated with ASD.

^a Based on the ICF definition (World Health Organisation, 2007); ^b from Batorowicz et al., (Batorowicz et al., 2016)
Note. References are detailed at the end of the Qualtrics survey.

Hyperlink 2

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Appendix D3: Round 2 Questionnaire

BLOCK ONE – INSTRUCTIONS

Thank-you for participating.

This survey should take **approximately [30 to 40 minutes] to complete**, however this may vary depending on your responses.

Remember that **you can leave this survey (multiple times) and come back later to where you left off**, if you **use the same computer and same web-browser** (i.e. do not start the survey on your mobile, then switch to a desktop computer) each time. You do not have to click a “save” button, just close the survey window and use the link to open the survey up again later. To ensure your response is recorded, please make sure you reach the very last page of the survey before closing your web browser.

Please make sure you have read “Application of findings to inform the development of the school-based intervention” before responding to the questions in this survey. You can [click on this link](#) OR open the attachment in the email that was sent to you.

BLOCK TWO – CONFIDENTIALITY

The following survey includes information about a school-based intervention that is currently being developed. Information about the school-based intervention in this survey is confidential and should not be disclosed in any manner or form, directly or indirectly, to any person or entity under any circumstances.

BLOCK THREE – QUESTIONS RELATED TO THE DEVELOPMENT OF THE SCHOOL-BASED INTERVENTION

This survey round will be asking questions about the **content, delivery and feasibility** of the school-based intervention.

There are many complex factors to consider when working with schools and with students with ASD. It is impossible for a single intervention to address all of these challenges. Please keep in mind when completing the survey that the intervention developed as a result of this study **focuses on improving the school participation and connectedness of students with ASD (without intellectual disability) in mainstream Year 3 and 4 classrooms.**

- 1. Improving the school participation and school connectedness of primary school students with ASD is important enough to warrant the development and implementation of a school-based intervention.**

Strongly disagree	Disagree	Neutral	Agree	Strongly Agree

* If you ‘disagree’ or ‘strongly disagree’, please provide your reasoning (force)

*If you responded ‘neutral’ please provide your reasoning here (force)

[PAGE BREAK]

- 2. It is proposed that the school-based intervention will include pre-intervention professional learning for teachers of targeted classrooms and key administration staff (e.g. Learning Support Coordinator/s, Principal/s, and Deputy Principal/s).**

•

- Based on participant comments from the first round, the following topics have been identified as potential content areas for pre-intervention professional learning –**
 - School participation and related intrinsic student factors – (i.e. relationship between school participation and intrinsic student factors, the value and benefit of supporting participation, positive outcomes and long term implications.)
 - Autism Spectrum Disorder – (i.e. characteristics, misunderstandings and myths, common challenges at school, evidence based supports.)
 - Importance of school culture and ways to promote a school culture that is accepting of difference.
 - Importance of building positive relationships between home and school and ways to foster collaborative partnerships.

- Importance of and strategies to assist in individualising supports to the needs of individual students with ASD.
- Building student empathy and supporting understanding and awareness of difference.
- Implementation of the school-based intervention – (i.e. how to incorporate into classroom routine, practicing intervention principles, troubleshooting potential challenges.)

Please provide any feedback you have about the proposed professional learning content, including any content you think should be removed, added or changed (force).

•

3. To maximise the *effectiveness* and the *feasibility* of the intervention, it is important to make sure the frequency, intensity and duration of the pre-intervention professional learning is appropriate.

a. In total, how much time do you think the professional learning should take?

- (slider, total number of hours, 0-10)
- *Please indicate how much time (in total) you think the professional learning should take (0, forced)

b. Over how many sessions do you think the professional learning should be delivered?

- (slider, number of sessions)

* Please specify the number of sessions you think the professional learning should be delivered over (0, forced)

c. Over what length of time do you think the professional learning should be delivered?

- (slider, days AND/OR weeks)
- *Please specify what length of time you think the professional learning should be delivered over (0,forced)

d. In what format do you think the professional learning should be delivered? (multiple choice, select all that apply, forced)

- Written information
- Online
- Face to face
- Power-point / lecture style
- Workshop style
- Other, please specify (forced text)

e. Please provide any comments you have about the frequency, intensity, duration and/or delivery of the pre-intervention professional learning (optional).

•

4. Based on your experience, please indicate how feasible you think proposed intervention techniques would be to implement in the school environment.

Note. Intervention principles have been identified from current literature and from findings of the first survey round. Intervention principles would be embedded into the school-based intervention. Teachers would have access to professional learning that supports their understanding of the use of these intervention principles along with an intervention manual with structured lesson plans and activity ideas.

a. **Role play** – For example, students' role play a conflict that happened at break time; pause throughout the role play and reflect on different students' points of view (i.e. what was Johnny thinking? How was Johnny feeling?) and trial strategies to resolve the conflict with support from the class or a small group.

•

Absolutely Not Feasible	Not Feasible	Neutral	Feasible	Very Feasible

- *If you responded 'neutral' please provide reasoning (forced).
- *If you responded 'absolutely not feasible' or 'not feasible' please provide your reasoning here (forced).

b. **Video modelling** – Video-modelling is a form of observational learning in which desired behaviours are learned by watching a video demonstration and then imitating the behaviour of the model. For example, students could video themselves playing appropriately (i.e. taking turns, sharing), watch and imitate skills depicted in the video. *Note. Classrooms would be provided with an iPad (if they do not have access to one already) to do the video-modelling.*

Absolutely Not Feasible	Not Feasible	Neutral	Feasible	Very Feasible

- *If you responded 'neutral' please provide reasoning (forced).
 - *If you responded 'absolutely not feasible' or 'not feasible' please provide your reasoning here (forced).
- c. **Peer modelling** – For example, a peer models how to sit on the mat using 'whole body listening' or how to take turns appropriately in play.
-
- | Absolutely Not Feasible | Not Feasible | Neutral | Feasible | Very Feasible |
|-------------------------|--------------|---------|----------|---------------|
| | | | | |
- *If you responded 'neutral' please provide reasoning (forced).
 - *If you responded 'absolutely not feasible' or 'not feasible' please provide your reasoning here (forced).
- d. **Teacher modelling** – For example, a teacher models empathy for a student by verbalising his/her thoughts and feelings and modelling appropriate actions (i.e. "I think Johnny might be upset", walks over to Johnny and asks "are you OK Johnny?" or "do you need help?").
-
- | Absolutely Not Feasible | Not Feasible | Neutral | Feasible | Very Feasible |
|-------------------------|--------------|---------|----------|---------------|
| | | | | |
- *If you responded 'neutral' please provide reasoning (forced).
 - *If you responded 'absolutely not feasible' or 'not feasible' please provide your reasoning here (forced).
- e. **Cognitive behavioural therapy (CBT) techniques** – CBT helps to teach students that thoughts cause feelings which can influence behavior. The student learns to identify harmful thought patterns and learns ways to replace this thinking with thoughts that result in more appropriate feelings and behaviours. Specific self-management style CBT techniques may include teaching students' to:
- seek evidence for and against the validity of negative thoughts.
 - identify the consequences of holding a particular belief.
 - categorise thoughts distortions (e.g. "I'm a failure" as 'mislabeling')
 - use positive reframing or positive self-statements (e.g. "I am not so good at math's, but I am good at reading".)
 - use guiding self-statements (e.g. 'stop, think, act')
 - use relaxation techniques (e.g. controlled breathing, progressive muscle relaxation.)
 -
- | Absolutely Not Feasible | Not Feasible | Neutral | Feasible | Very Feasible |
|-------------------------|--------------|---------|----------|---------------|
| | | | | |
- - *If you responded 'neutral' please provide reasoning (forced).
 - *If you responded 'absolutely not feasible' or 'not feasible' please provide your reasoning here (forced).
- f. **Task adaptation** – Task adaptation results from a process of analysing a task and breaking it down into smaller steps to identify where the problem is occurring, and then adapting the task to support participation. For example:
- Breaking down the task into smaller steps and presenting one step at a time;
 - Providing more time to complete a task;
 - Reducing the amount of work output required; and
 - Allowing students to complete work in a variety of ways (e.g. using pen/ paper vs. computer).
 -
- | Absolutely Not Feasible | Not Feasible | Neutral | Feasible | Very Feasible |
|-------------------------|--------------|---------|----------|---------------|
| | | | | |
- *If you responded 'neutral' please provide reasoning (forced).
 - *If you responded 'absolutely not feasible' or 'not feasible' please provide your reasoning here (forced).
- g. **Environmental adaptation** – For example:
- Considering the positioning of students in the classroom (e.g. placing student that is easily distracted closer to the front of the classroom or away from windows.)
 - Removing distraction in the classroom or workspace (e.g. removing excess clutter from workspace.)
 - Allowing students to use assistive technology (e.g. Dictaphones, computers for long writing.)
 - Using visual supports (i.e. schedules, timers, structured work tasks presented visually)
 -

Absolutely Not Feasible	Not Feasible	Neutral	Feasible	Very Feasible

- *If you responded 'neutral' please provide reasoning (forced).
 - *If you responded 'absolutely not feasible' or 'not feasible' please provide your reasoning here (forced).
- h. Incorporation of structure and routine.** For example, support students to generate ideas for structured break time activities; establish a set of rules or guidelines for the activity and present visually; practice activity in a supported environment and fade support over time.

Absolutely Not Feasible	Not Feasible	Neutral	Feasible	Very Feasible

- *If you responded 'neutral' please provide reasoning (forced).
 - *If you responded 'absolutely not feasible' or 'not feasible' please provide your reasoning here (forced).
- i. Use of play as a therapeutic medium** – Provide opportunities to learn skills through child-led or non-directed play based interactions wherever possible. For example, incorporate a short period of time during the day where students can engage in free play in the classroom. The teacher can provide students with feedback on interpersonal interactions and assist students in problem solving if and when conflicts arise.

Absolutely Not Feasible	Not Feasible	Neutral	Feasible	Very Feasible

- *If you responded 'neutral' please provide reasoning (forced).
 - *If you responded 'absolutely not feasible' or 'not feasible' please provide your reasoning here (forced).
- j. Incorporation of student interests and preferences into learning tasks.** For example, if a student is interested in Minecraft, allow the student to write a persuasive text for and against use of Minecraft at school during break time.

Absolutely Not Feasible	Not Feasible	Neutral	Feasible	Very Feasible

- *If you responded 'neutral' please provide reasoning (forced).
 - *If you responded 'absolutely not feasible' or 'not feasible' please provide your reasoning here (forced).
- k. Parental involvement for generalisation of skills.** For example, organizing parent information sessions to explain the school-based intervention and other key topics, and providing weekly parent handouts that explain target skill and ways to generalize skills in the home environment.
- Note. Parent information sessions would be organised and facilitated by the primary investigator of the study with support from key administration staff. The classroom teacher would be provided with a manual which will include weekly parent information handouts, that they can send home with students each week.*

Absolutely Not Feasible	Not Feasible	Neutral	Feasible	Very Feasible

- *If you responded 'neutral' please provide reasoning (forced).
 - *If you responded 'absolutely not feasible' or 'not feasible' please provide your reasoning here (forced).
- l. Peer mediated intervention** – peer mediated intervention techniques involve training peers to initiate, prompt and reinforce social interactions. A training protocol is used to deliver specific social offers (e.g. "do you want to play?"). Peers then role play with adults until they have learned the strategies and are then prompted to interact with target students. Reinforcements are systematically faded as the peer acquires the skill.
- Peer mediated intervention, **at a targeted level.** For example, selecting specific peers to initiate, prompt and reinforce social interactions with the student with ASD.

Absolutely Not Feasible	Not Feasible	Neutral	Feasible	Very Feasible

- *If you responded 'neutral' please provide reasoning (forced).
 - *If you responded 'absolutely not feasible' or 'not feasible' please provide your reasoning here (forced).
- Peer mediated intervention, **at a whole-class level.** For example, training the whole-class to initiate, promote and reinforce social interactions with all students.

Absolutely Not Feasible	Not Feasible	Neutral	Feasible	Very Feasible

- *If you responded 'neutral' please provide reasoning (forced).
 - *If you responded 'absolutely not feasible' or 'not feasible' please provide your reasoning here (forced).
- m. **Self-management techniques** – This represents a broad range of skills and strategies students can use to assess and regulate their behaviour. Self-management techniques include:
- self-monitoring (i.e. student observes the occurrence of behaviour and records it)
 - self-evaluation (i.e. student develops and evaluates performance goals)
 - self-instruction (i.e. student applies self-directed statements to guide behaviour)
 - self-reinforcement (i.e. student chooses and administers reinforcement when pre-determined criteria is met)

Self-management techniques, **at an individual student level**. For example, developing an individualized self-regulation plan with specific students who require support to regulate emotions throughout the day which includes their specific triggers and self-regulatory strategies.

Absolutely Not Feasible	Not Feasible	Neutral	Feasible	Very Feasible

- *If you responded 'neutral' please provide reasoning (forced).
- *If you responded 'absolutely not feasible' or 'not feasible' please provide your reasoning here (forced).

Self-management techniques, **at a whole-class level**. For example, establishing a whole-class break system whereby students can effectively communicate when they need a break and access different break options; regularly 'checking in' with the whole-class about what they are thinking and how they are feeling throughout the school day and incorporating regular whole-class breaks into the classroom routine.

Absolutely Not Feasible	Not Feasible	Neutral	Feasible	Very Feasible

- *If you responded 'neutral' please provide reasoning (forced).
 - *If you responded 'absolutely not feasible' or 'not feasible' please provide your reasoning here (forced).
- n. **Differential reinforcement** – Reinforcing only the appropriate response or the behaviour that you want to increase.
- Differential reinforcement, **at an individual student level**. For example, establish individual reinforcement systems with specific students that require additional support to engage in appropriate behaviour.

Absolutely Not Feasible	Not Feasible	Neutral	Feasible	Very Feasible

*If you responded 'neutral' please provide reasoning (forced).

- *If you responded 'absolutely not feasible' or 'not feasible' please provide your reasoning here (forced).

Differential reinforcement, **at a whole-class level**. For example, develop a set of classroom behavioural expectations as a class; when students engage in classroom expectations, teacher reinforces behaviour with a reward that is pre-determined by the class.

Absolutely Not Feasible	Not Feasible	Neutral	Feasible	Very Feasible

- **If you responded 'neutral' please provide reasoning (forced).
- *If you responded 'absolutely not feasible' or 'not feasible' please provide your reasoning here (forced).

Please provide any comments you have about proposed intervention principles, including any intervention principles you feel have been missed (optional)

- The intervention will include a whole-class program designed to be delivered by the classroom teacher during the school week. The classroom program will be outlined in module format in an intervention manual which will include: specific aims of the lesson and materials required, a brief review of previous lessons concept or skills, structured teaching of the new concept or skills and ideas of ways to incorporate concepts incidentally throughout the school week. The manual will also include information for teachers and weekly information handouts for parents about how they can help generalize learning in the home environment.
- To maximise the *effectiveness* and the *feasibility* of the intervention, it is important to make sure the frequency, duration and intensity of the classroom program is appropriate.
- In total, how many minutes a week do you think the classroom program should be delivered?**

- (slider, total number of minutes).
 - Please specify in total how many minutes a week you think the classroom program should be delivered (0, forced)
- a. **How many times a week do you think the classroom program should be delivered?**
- *Note. if your preferred option is not available, please leave slider at '0' and make a comment.*
 - *Please specify how many times a week you think the classroom program should be delivered (0, forced)*
- b. **Over what length of time do you think the classroom program should be delivered?**
- (Multiple choice, select only one)
 - One term (~10 weeks)
 - Two terms (~20 weeks)
 - Three terms (~30 weeks)
 - School year (~40 weeks)
 - Other (please specify)
- c. **Please provide any comments you have about the frequency, duration and/or intensity of the classroom program (optional).**
- d. Remember, the purpose of the classroom program is to address common challenges students experience in their participation at school by building students' understanding and awareness of strengths and differences; their ability to recognise when a peer may need help and to help a peer when needed. All modules will have a common thread of developing students' empathy, social attention, social thinking and problem solving skills. Intervention principles outlined in the previous question (e.g. video modelling, role play) will be used to facilitate or deliver the content throughout all modules using play as a therapeutic medium. Module topics were developed based on the literature, findings from focus groups with educators and parents of primary school students with ASD and from findings of the first round of the Delphi. Please note, module topics (including their names) are subject to change and any feedback would be greatly appreciated in the comments section.
- **Please indicate perceived level of importance of proposed weekly classroom module topics**

Proposed weekly module topics	Responses				
	Not important	Of Little Importance	Neutral	Moderately important	Very Important
<u>Who am I and where do I fit in at school?</u> <i>Identify personal strengths, interests, friends and supports at school; self-evaluate feelings towards school, satisfaction and performance in key areas; set goals for school participation.</i>					
<u>We are all unique</u> <i>Recognise that everyone is different; connect with peers with similar strengths and differences; create difference.</i>					
<u>What is ASD?</u> <i>Characteristics of ASD; misunderstanding and myths; strengths and successful people with ASD; potential difficulties at school; how to help.</i>					
<u>Being part of my class</u> <i>Recognise the role and power everyone has to help others to participate; identify qualities of a class citizen; develop a set of classroom expectations to support participation; practice strategies in being assertive when someone is not inclusive</i>					
<u>Thinking about others</u> <i>Learn how to recognise when a peer may need help at school by using their body language, tone of voice, thoughts, feelings and actions.</i>					
<u>Staying calm at school</u> <i>Recognise that everyone responds differently to emotions at school, develop individual self-regulation plans; establish a whole-class</i>					

<i>break communication system; practice self-regulatory techniques.</i>					
<u>Learning through the senses</u> <i>Identify and recognise differences in sensory preferences and learning styles; discuss and implement adaptations to the classroom to support learning.</i>					
<u>Being a good learner</u> <i>Recognise that everyone learns differently; recognise when a peer may need help in class (e.g. to ask for help; to stay on task); learn ways to help everyone learn together.</i>					
<u>Making friends</u> <i>Recognise that everyone likes to be included and to have someone to call a friend; identify qualities of good friend; practice friendship skills (initiating, joining in, sharing, taking turns).</i>					
<u>Having conversations</u> <i>Recognise key challenges in conversation; practice conversational skills (asking questions, initiating, staying on topic)</i>					
<u>Play at break time</u> <i>Identify common break times issues and solutions; recognise when a peer needs help at break and learn ways of helping; create structured activities or games for break time as a class.</i>					
<u>Managing change and transitions</u> <i>Discuss common changes and transitions at school and associated feelings; prioritise one change/transition that is important to the class; develop strategies to support change/transition.</i>					
<u>Managing conflict</u> <i>Recognise that conflict is a part of everyday life at school; recognise other people's points of view in a conflict; learn ways to manage conflict.</i>					
<u>Being part of my school</u> <i>Reflect back to the first module; identify ways to get more involved at school and create new opportunities as a class, revisit vision for the future; celebrate differences within the class and school.</i>					

*If you selected 'not important' or 'of little importance' to any of the above, please provide your reasoning here.

*If you selected 'neutral' to any of the above, please provide your reasoning here.

- e. Please provide feedback you have on the proposed classroom module topics including any content you think needs to be added, removed or changed.
 - f. Please drag and drop proposed classroom module topics in order of importance.
 - That is, if you only had a limited number of modules available, which modules are most important and in what order – with (1) being very important and (14), not very important.
 - g. Please provide any comments you have about the order in which you placed classroom modules above (optional).
6. The intervention has been developed based on the challenges primary school students with ASD experience in mainstream schools. Some might argue that there should be a module within the class program for students that includes ASD specific information as information may lead to understanding and help peers to be able to better support students with ASD. Others might argue, however, that everyone has strengths and differences and it would not be helpful to label ASD in the classroom program, specifically.

•

- a. Based on your experience, please tick which option you think would be most appropriate.

Tick	Option (description)
	Include an ASD specific module in the classroom program.
	Include information more generally about disability and inclusion.
	Provide both as options, and allow individual school, classroom, family and student with ASD to choose what suits them best.
	None of the above

*If you selected 'none of the above' please provide your reasoning here (forced)

- b. Please provide any comments about how you feel ASD specific content should be delivered and any special considerations you feel need to be taken into account (optional).

7. It is envisaged that the classroom program will be linked to the Australian Curriculum, so that the intervention is not an 'add on' to an already busy classroom schedule. For example, a module relating to 'we are all unique', may address 'Describe how respect, empathy and valuing diversity can positively influence relationships ACPPS037' under 'personal and social competence' in the Australian Curriculum and could be covered during health.

Please provide any feedback about how you think the school-based intervention could be embedded into existing curriculum? (request response)

Please comment on the type of support you think schools and teachers would require to implement the school-based intervention and how best you think this could be delivered? (request response)

8. If you have any further comments about the content, feasibility and delivery of the school-based intervention, please detail them here.

BLOCK FIVE – END OF SURVEY

Thank-you for taking the time to complete this survey.

You will receive an email approximately 4 to 6 weeks after the due date of the survey with a summary of findings from this round of the Delphi, and a link to the third (and final) survey.

Your ongoing input is very much appreciated. If you have any questions please contact the primary investigator (amy.hodges@curtin.edu.au).

*Please make sure you navigate to the next and final page of the survey to make sure your response is recorded.

QUESTIONS THAT CAN WAIT FOR ROUND THREE

**Note – anticipate, continued questions from Round 2 to gain consensus, particularly about intervention modules.*

9. The intervention focuses on supporting all peers to recognise when a classmate may need support and what level of support they can provide. This will be targeted at a whole-class level in each module, and at an individual or targeted level. It is anticipated that a specific small group of peers will be identified in the classroom that may have skills to support the student with ASD. These peers will be provided with more specific training about how to support the student with ASD in their class. They may also be involved in practicing some of the skills learnt throughout the intervention in small groups with the student with ASD.
- Based on your experience, how do you best think the targeted small group peer training could be conducted?
 - Based on your experience, do you envisage any challenges with implementing this peer support within the classroom? If so, how do you think these challenges may be addressed?
10. Many school-based interventions use characters or themes to deliver content in a fun and meaningful way to engage students. For example, the Secret Agent Society program uses the concept of being a secret agent to deliver content about emotions and friendship. How do you think the content of this school-based intervention, could be delivered in a fun and meaningful way for Year 3 and 4 students, taking into account that the focus of the intervention is improving participation?
11. The manualized intervention will include ideas of school wide activities that can be facilitated alongside the classroom program which complement learning objectives. The Learning Support Coordinator, Principal and/or Deputy Principal of the school can choose, organise and facilitate activities that suit their school's needs best. Examples of school wide activities include:
- Inserts for school newsletters relating to content of modules

- Autism Awareness morning tea or related activities
 - Celebrate diversity morning tea
 - Assembly items related to content of modules such as strengths and differences, importance of inclusion, how to recognize when someone needs help and how to help.
- Please provide any feedback you have about the school wide activities including any other potential ideas of involving the whole-school, potential challenges and solutions.

12. Describe strategies you feel would be helpful in getting schools and teachers agreeable to implementing the intervention in their schools and classrooms?

13. Please order modules in the order in which you think they should be delivered. (Drag and drop)

1	
2	
3	
4	
5	
6	
7	
8	

*Please provide any comments that will assist in analysing your response.

Appendix E: Consumer and Stakeholder Reference Group

Appendix E1: Participant Information Sheet and Consent Form

CONSUMER REFERENCE GROUP

INFORMATION STATEMENT

HREC Project Number:	<i>HRE-2016-0150</i>
Project Title:	The development and evaluation of a school-based intervention for improving participation in school occupations and sense of school connectedness for primary school students with Autism Spectrum Disorder.
Principal Investigator:	<i>Dr. Annette Joosten</i>
Student Investigator:	<i>Amy Hodges</i>
Version Number:	<i>Version 1</i>
Version Date:	<i>16.06.2016</i>

What is the Project About?

There are increasing numbers of students with Autism Spectrum Disorder (ASD) enrolling in mainstream schools. Sometimes, students with ASD experience challenges in a mainstream school environment. We wish to investigate how students feel they belong: a term referred to as 'school connectedness'. Lack of school connectedness has been found to have an impact on students' mental health and wellbeing. Many programs aim to support students with ASD to develop their social skills but there is a gap in interventions that support students with the range of challenges they may experience across the school day. This project aims to develop and evaluate an intervention to improve the participation of students with ASD so they feel connected and included at school. The intervention will be run by the classroom teacher and be able to be incorporated into the curriculum. It will focus on supporting classmates to include students with ASD and help to empower teachers to build their capacity to include students with ASD in the classroom. The project will involve three Phases. Phase One will involve developing the intervention by reviewing the literature and talking with parents, teachers and researchers about what is important to include in the intervention and how it should be implemented. Phase Two will involve trialling the intervention in one classroom to get initial feedback. Phase Three will involve testing it in multiple schools to see whether it is effective, but also whether it is easy to use in a busy classroom environment.

Who is doing the Research?

The project is being conducted by Amy Hodges, under the supervision of Dr Annette Joosten, A/Prof Reinie Cordier and Dr Helen Bourke-Taylor. The results of this research project will be used by Amy Hodges to obtain a Doctor of Philosophy at Curtin University.

Why am I being asked to take part and what will I have to do?

You have been asked to take part because of your knowledge and expertise in the topic area. If you choose to participate, you will be invited to attend 3 - 4 meetings with other experts (may include allied health professionals, parents / caregivers, teachers, school leaders or school aged service providers) , over the 3-4 years of the research project. The meetings will run for about an hour and be held in a mutually convenient location at key times. In the meetings, you will be asked to share your thoughts and opinions, based on your experience, about the intervention and provide recommendations regarding the best way to address particular issues or concerns within the context of the school environment.. This information will help us to make sure that the intervention is usable and appropriate when implementing an intervention within a school environment. We will make an audio recording of each meeting so we can concentrate on what you are saying and not get distracted taking notes. After the discussion we will make a full written copy of the recording and we will use this information to help inform the development of the intervention and help inform the research process. We will send you a summary of what was discussed at each meeting and provide you with regular updates on the research progress via email. We will give you at least three weeks notice before a meeting is scheduled. All information will be de-identified. Information collected from the meetings will be analysed and only group information will be reported. There will be no cost to you for taking part in this research.

Are there any benefits' to being in the research project?

There may be no direct benefit to you from participating in this research. Sometimes, people appreciate the opportunity to discuss their thoughts and opinions and share their expertise. We hope the results of this research will help us to develop an intervention that will improve the participation of students with ASD so that they feel like they belong and are included at school. Your input will help us to make sure that the intervention is usable and appropriate in the school environment and also raise any issues that you believe may impact upon the research. We hope the results of this research will also add to knowledge of how we can support students with ASD in mainstream school.

Are there any risks, side-effects, discomforts or inconveniences from being involved in the research project?

There are no foreseeable risks from this research project. Apart from giving up your time, we do not expect that there will be any risks or inconveniences associated with taking part in this study.

Who will have access to my information?

Any information we collect will be treated as confidential and used only in this project unless otherwise specified. Only the research team will have access to the information. The information collected in this research will be re-identifiable which means we will remove identifying information on any data and replace it with a code. The code will be stored separately from the participant data. Hardcopies of the information we collect in this study will be kept under secure conditions in the School of Occupational Therapy and Social Work at Curtin University. Electronic data will be password-protected and hard copy data (including audio tapes) will be in locked storage. It will be kept for a period of 7 years after the research has ended and then it will be

destroyed. You have the right to access, and request correction of, your information in accordance with relevant privacy laws. The results of this research may be presented at conferences or published in professional journals. You will not be identified in any results that are published or presented.

Will you tell me the results of the research?

We will send you a summary of the findings from the study at key stages throughout the research process. We will also make the results available through publication in scientific peer reviewed journals.

Do I have to take part in the research project?

Taking part in a research project is voluntary. It is your choice to take part or not. You do not have to agree if you do not want to. If you decide to take part and then change your mind, that is okay, you can withdraw from the project. You do not have to give us a reason; just tell us that you want to stop. If you chose to leave the study we will use any information collected unless you tell us not to.

What happens next and who can I contact about the research?

If you decide to take part in this research we will ask you to sign the consent form. By signing it is telling us that you understand what you have read and what has been discussed. Signing the consent indicates that you agree to be in the research project. Please take your time and ask any questions you have before you decide what to do. You will be given a copy of this information and the consent form to keep. If you have any questions or would like to discuss the research further you can contact Amy Hodges on amy.hodges@curtin.edu.au or 0419383169.

Curtin University Human Research Ethics Committee (HREC) has approved this study (HREC number XX/XXXX). Should you wish to discuss the study with someone not directly involved, in particular, any matters concerning the conduct of the study or your rights as a participant, or you wish to make a confidential complaint, you may contact the Ethics Officer on (08) 9266 9223 or the Manager, Research Integrity on (08) 9266 7093 or email hrec@curtin.edu.au.

CONSUMER REFERENCE GROUP

CONSENT FORM

HREC Project Number:	<i>HRE-2016-0150</i>
Project Title:	<i>The development and evaluation of a school-based intervention for improving participation in school occupations and sense of school connectedness for primary school students with Autism Spectrum Disorder.</i>
Principal Investigator:	<i>Dr. Annette Joosten</i>
Student Investigator	<i>Amy Hodges</i>
Version Number:	<i>Version 1</i>
Version Date:	<i>16.06.2016</i>

- I have read the information statement version listed above and I understand its contents.
- I believe I understand the purpose, extent and possible risks of my involvement in this project.
- I voluntarily consent to take part in this research project.
- I have had an opportunity to ask questions and I am satisfied with the answers I have received.
- I understand that this project has been approved by Curtin University Human Research Ethics Committee and will be carried out in line with the National Statement on Ethical Conduct in Human Research (2007).
- I understand I will receive a copy of this Information Statement and Consent Form.
- I consent to the meetings being audio-recorded.

Participant Name	
Participant Signature	
Date	

OPTIONAL CONSENT

<input type="checkbox"/> I do	<input type="checkbox"/> I do not	consent to be contacted about future research projects that are related to this project
<input type="checkbox"/> I do	<input type="checkbox"/> I do not	consent to the storage and use of my information in future ethically-approved research projects related to this (project/disease)

Declaration by researcher: I have supplied an Information Letter and Consent Form to the participant who has signed above, and believe that they understand the purpose, extent and possible risks of their involvement in this project.

Researcher Name	Amy Hodges
Researcher Signature	
Date	

Appendix E2: Parent/ Caregiver Demographic Questionnaire

Parent / Caregiver Family and Demographic Survey

32. My gender is: (please ✓ one)

- ☐ Male
- ☐ Female

33. What is your age? _____

•

34. What is your present marital status? (please ✓ one)

- ☐ Never married
- ☐ Widowed
- ☐ Divorced
- ☐ Separated but not divorced
- ☐ Married
- ☐ Defacto

35. Are you of Aboriginal or Torres Strait Islander origin? (please ✓ one)

- ☐ No
- ☐ Yes Aboriginal
- ☐ Yes Torres Strait Islander.

36. Are you an Australian Citizen? (please ✓ one)

- ☐ Yes Australian Citizen
- ☐ No

37. Do you speak a language other than English at home? (please ✓ one)

- ☐ No English only
- ☐ Yes. Please specify _____

38. How many children are in your family? (please ✓ one)

- ☐ 1
- ☐ 2
- ☐ 3
- ☐ 4
- ☐ 5 or more. Please specify: _____

•

39. What is your relationship to your child? (please ✓ one)

- ☐ Mother
- ☐ Father
- ☐ Grandparent
- ☐ Step

- ☐ Parent
- ☐ Guardian
- ☐ Other. Please specify: _____

•

40. Do you have a child/ren with a developmental delay or a diagnosed disability? (please ✓ one)

- ☐ Yes. Please specify type and year of diagnosis: _____
- ☐ No

•

41. Are you currently receiving services or supports outside of school?

- ☐ Yes. Please specify: _____
- ☐ No

•

42. What year is your child in at school?

- ☐ Kindergarten
- ☐ Pre-Primary
- ☐ Year 1
- ☐ Year 2
- ☐ Year 3
- ☐ Year 4
- ☐ Year 5
- ☐ Year 6
- ☐ Year 7
- ☐ Year 8
- ☐ Year 9
- ☐ Year 10
- ☐ Year 11
- ☐ Year 12

•

43. What type of school does your child attend?

- ☐ Public
- ☐ Public with independent status
- ☐ Independent (Association of Independent Schools Western Australia)
- ☐ Catholic
- ☐ Other. Please specify: _____

•

44. How long have they been attending their current school?

- ☐ 0 – 1 years
- ☐ 1 – 3 years
- ☐ 3 – 5 years
- ☐ >5 years

45. How many schools have they attended in the last 5 years?

- ☐ 1
- ☐ 2

- ☐ 3
- ☐ 4
- ☐ More than 5. Please specify: _____

46. Does your child have an Individual Education Plan?

- ☐ Yes
- ☐ No.

47. Does your child have Education Assistant time?

- ☐ Yes. Please specify number of hours: _____
- ☐ No.

Thankyou for completing this survey.

Appendix E3: Clinician and School Leader Demographic Questionnaire

Consumer & Stakeholder Reference Group Demographic Survey

48. My gender is: (please ✓ one)

- ☐ Male
- ☐ Female

49. What is your age? _____

50. Where do you currently work?

- _____

51. What is your role?

- _____

52. How many years have you been working in this role? (please ✓ one)

- ☐ 0 – 1 years
- ☐ 1 – 3 years
- ☐ 3 – 5 years
- ☐ 5 – 7 years
- ☐ 7 – 9 years
- ☐ >10 years. Please specify: _____

53. How many years' experience do you have working with students with Autism Spectrum Disorder (ASD)?

- ☐ 0 – 1 years
- ☐ 1 – 3 years
- ☐ 3 – 5 years
- ☐ 5 – 7 years
- ☐ 7 – 9 years
- ☐ >10 years. Please specify: _____

54. How many students with Autism Spectrum Disorder (ASD) have you worked with?

- ☐ 1
- ☐ 2
- ☐ 3
- ☐ 4
- ☐ 5
- ☐ More than 5. Please specify: _____

55. Please describe any other relevant experience that you have.

- _____
- _____
- _____

Thankyou for completing this survey

Appendix F: Trial

Appendix F1: Parent Information Sheet and Consent Form

PARENT

FEEDBACK INFORMATION STATEMENT

HREC Project Number:	<i>HREC2016-0150</i>
Project Title	The development and evaluation of a school-based intervention for improving participation in school occupations and sense of school connectedness for primary school students with Autism Spectrum Disorder.
Principal Investigator:	<i>Associate Professor Reinie Cordier</i>
Student Investigator	<i>Amy Hodges</i>
Version Number:	<i>Version 1</i>
Version Date:	16.4.2020

What is the project about?

There are increasing numbers of students with Autism Spectrum Disorder (ASD) enrolling in mainstream schools. Sometimes, students with ASD experience challenges in a mainstream school environment. We wish to investigate how students feel they belong: a term referred to as 'school connectedness'. Lack of school connectedness has been found to have an impact on students' mental health and wellbeing. Many programs aim to support students with ASD to develop their social skills but there is a gap in interventions that support students with the range of challenges they may experience across the school day. This project aims to develop and evaluate an intervention to improve the participation of students with ASD so they feel connected and included at school. The intervention will be run by the classroom teacher and be able to be incorporated into the curriculum. It will focus on supporting classmates to include students with ASD and help to empower teachers to build their capacity to include students with ASD in the classroom. The project will involve three Phases. Phase One will involve developing the intervention by reviewing the literature and talking with parents, teachers and researchers about what is important to include in the intervention and how it should be implemented. Phase Two will involve gaining feedback from parents, teachers and students about different parts of the intervention using online surveys. Phase Three will involve trialling the intervention in multiple classrooms to see whether it is effective and to see whether it is easy to use in a busy classroom environment.

Who is doing the research?

The project is being conducted by Amy Hodges, under the supervision of A/Prof Reinie Cordier, A/Prof Annette Joosten and A/Prof Helen Bourke-Taylor. The results of this research project will be used by Amy Hodges to obtain a Doctor of Philosophy (Occupational Therapy) at Curtin University.

Why am I being asked to take part and what will I have to do?

We are up to Phase Two of the research. We have developed the intervention and are now looking to get feedback from parents on the parent information handouts that are included as part of the intervention. To be able to participate, parents need to have a primary school age child. Participation will involve you reading ten participant information handouts and completing an online survey that should take less than 10 minutes to complete. Once you have agreed to participate, you will be sent the parent information handouts via email to download and sent a link to a survey using Qualtrics to provide your feedback. You can take approximately two weeks to complete the survey.

Are there any benefits' to being in the research project?

By participating in this research, you will be able to learn about a new evidence-based intervention that aims to improve the school participation and connectedness of students with ASD. You will have access to free resources that help to explain topics such as ASD, social thinking and social problem solving and give you ideas about ways to support your child's learning in these areas at home. You will also be provided information about the feasibility study that is planned later in the year, which you are welcome to take to your child's school to see whether they are interested in participating and meet eligibility criteria (i.e., Year 3 or 4 classroom with at least one student with ASD in the class who has at least a Year 1 reading level). We hope the results of this research will help us to refine the intervention before testing it in schools later this year.

Are there any risks, side-effects, discomforts or inconveniences from being involved in the research project?

There are no foreseeable risks from this research project. Participation in this research is all online and can be done at a time and place convenient to you. If your involvement in the research causes you any concerns or distress we can refer you to a counsellor.

Who will have access to my information?

Any information we collect will be treated as confidential and used only in this project unless otherwise specified. Only the research team will have access to the information. The information collected in this research will be re-identifiable which means we will remove identifying information on any data and replace it with a code. The code will be stored separately from the participant data. Hardcopies of the information we collect in this study will be kept under secure conditions in the School of Occupational Therapy and Social Work at Curtin University. Electronic data will be password-protected and hard copy data (including audio tapes) will be in locked storage. It will be kept for a period of 25 years after the research has ended and then it will be destroyed. You have the right to access, and request correction of, your information in accordance with relevant privacy laws. The results of this research may be presented at conferences or published in professional journals. You will not be identified in any results that are published or presented.

Will you tell me the results of the research?

We will send you a summary of the findings and detail how these will contribute towards refining the intervention before it is tested in schools. You should receive these results within 3 months of participating in the research. We will also make the results available through publication in scientific peer reviewed journals.

Do I have to take part in the research project?

Taking part in a research project is voluntary. It is your choice to take part or not. You do not have to agree if you do not want to. If you decide to take part and then change your mind, that is okay, you can withdraw from the project. You do not have to give us a reason; just tell us that you want to stop. If you choose to leave the study we will use any information collected unless you tell us not to.

What happens next and who can I contact about the research?

If you decide to take part in this research we will ask you to consent to participate by indicating consent on the online survey. By saying that you consent on the survey you are telling us that you understand what you have read in this information sheet. Please take your time and ask any questions you have before you decide what to do. You will be given a copy of this information to keep. If you have any questions or would like to discuss the research further you can contact Amy Hodges on amy.hodges@curtin.edu.au or 0419383169.

Curtin University Human Research Ethics Committee (HREC) has approved this study (HREC2016-0150). Should you wish to discuss the study with someone not directly involved, in particular, any matters concerning the conduct of the study or your rights as a participant, or you wish to make a confidential complaint, you may contact the Ethics Officer on (08) 9266 9223 or the Manager, Research Integrity on (08) 9266 7093 or email hrec@curtin.edu.au.

Appendix F2: Educator Information Sheet and Consent Form

TEACHER

FEEDBACK INFORMATION STATEMENT

HREC Project Number:	<i>HREC2016-0150</i>
Project Title	The development and evaluation of a school-based intervention for improving participation in school occupations and sense of school connectedness for primary school students with Autism Spectrum Disorder
Principal Investigator:	<i>Associate Professor Reinie Cordier</i>
Student Investigator	<i>Amy Hodges</i>
Version Number:	<i>Version 1</i>
Version Date:	16.4.2020

What is the project about?

There are increasing numbers of students with Autism Spectrum Disorder (ASD) enrolling in mainstream schools. Sometimes, students with ASD experience challenges in a mainstream school environment. We wish to investigate how students feel they belong: a term referred to as 'school connectedness'. Lack of school connectedness has been found to have an impact on students' mental health and wellbeing. Many programs aim to support students with ASD to develop their social skills but there is a gap in interventions that support students with the range of challenges they may experience across the school day. This project aims to develop and evaluate an intervention to improve the participation of students with ASD so they feel connected and included at school. The intervention will be run by the classroom teacher and be able to be incorporated into the curriculum. It will focus on supporting classmates to include students with ASD and help to empower teachers to build their capacity to include students with ASD in the classroom. The project will involve three Phases. Phase One will involve developing the intervention by reviewing the literature and talking with parents, teachers and researchers about what is important to include in the intervention and how it should be implemented. Phase Two will involve gaining feedback from parents, teachers and students about different parts of the intervention using online surveys. Phase Three will involve trialling the intervention in multiple classrooms to see whether it is effective and to see whether it is easy to use in a busy classroom environment.

Who is doing the research?

The project is being conducted by Amy Hodges, under the supervision of A/Prof Reinie Cordier, A/Prof Annette Joosten and A/Prof Helen Bourke-Taylor. The results of this research project will be used by Amy Hodges to obtain a Doctor of Philosophy (Occupational Therapy) at Curtin University.

Why am I being asked to take part and what will I have to do?

We are up to Phase Two of the research. We have developed the intervention and are now looking to get feedback from teachers on the intervention including its manual, professional learning and associated resources. To be able to participate, teachers need to have experience working with students with ASD and with students in Year 3 and 4. Participation will involve you reading the intervention manual, completing online professional learning and then an online feedback survey. The online professional learning should take approximately 1 to 1.5 hours to complete and the survey should take less than 15 minutes. Once you have agreed to participate, you will be sent the intervention package via Hightail to download. You will then be sent an email with a link to a survey using Qualtrics to provide your feedback. You can take up to four weeks to complete the survey.

Are there any benefits' to being in the research project?

By participating in this research, you will be able to learn about a new evidence-based intervention that aims to improve the school participation and connectedness of students with ASD. You will have access to free online professional learning that you can complete at a time that is convenient to you and use towards your professional development hours. You will also be invited to participate in testing the intervention later in the year if your school and classroom meets eligibility criteria (i.e., Year 3 or 4 classroom; at least one student with ASD who has at least a Year 1 reading level). We hope the results of this research will help us to refine the intervention prior to testing it in schools later this year.

Are there any risks, side-effects, discomforts or inconveniences from being involved in the research project?

There are no foreseeable risks from this research project. Participation in this research is all online and can be done at a time and place convenient to you. If your involvement in the research causes you any concerns or distress we can refer you to a counsellor.

Who will have access to my information?

Any information we collect will be treated as confidential and used only in this project unless otherwise specified. Only the research team will have access to the information. The information collected in this research will be re-identifiable which means we will remove identifying information on any data and replace it with a code. The code will be stored separately from the participant data. Hardcopies of the information we collect in this study will be kept under secure conditions in the School of Occupational Therapy and Social Work at Curtin University. Electronic data will be password-protected and hard copy data (including audio tapes) will be in locked storage. It will be kept for a period of 25 years after the research has ended and then it will be destroyed. You have the right to access, and request correction of, your information in accordance with relevant privacy laws. The results of this research may be presented at conferences or published in professional journals. You will not be identified in any results that are published or presented.

Will you tell me the results of the research?

We will send you a summary of the findings and detail how these will contribute towards refining the intervention before it is tested in schools. You should receive these results within 3 months of participating in the research. We will also make the results available through publication in scientific peer reviewed journals.

Do I have to take part in the research project?

Taking part in a research project is voluntary. It is your choice to take part or not. You do not have to agree if you do not want to. If you decide to take part and then change your mind, that is okay, you can withdraw from the project. You do not have to give us a reason; just tell us that you want to stop. If you choose to leave the study we will use any information collected unless you tell us not to.

What happens next and who can I contact about the research?

If you decide to take part in this research we will ask you to consent to participate by indicating consent on the online survey. By saying that you consent on the survey you are telling us that you understand what you have read in this information sheet. Please take your time and ask any questions you have before you decide what to do. You will be given a copy of this information to keep. If you have any questions or would like to discuss the research further you can contact Amy Hodges on amy.hodges@curtin.edu.au or 0419383169.

Curtin University Human Research Ethics Committee (HREC) has approved this study (HREC2016-0150). Should you wish to discuss the study with someone not directly involved, in particular, any matters concerning the conduct of the study or your rights as a participant, or you wish to make a confidential complaint, you may contact the Ethics Officer on (08) 9266 9223 or the Manager, Research Integrity on (08) 9266 7093 or email hrec@curtin.edu.au.

In My Shoes Parent Feedback

Start of Block: CONSENT

Q1 CONSENT

Thank-you for participating. This survey is for invited participants only. Before proceeding with this survey, you must consent to participate in this study. Please read the information below and respond accordingly.

I understand the aim of this survey is to obtain feedback on parent information handouts that are included as part of a school-based intervention (called *In My Shoes*) that aims to improve the school participation and feelings of connectedness of students with Autism Spectrum Disorder in Year 3 and 4 mainstream primary schools.

I have been asked to participate as I have a primary school aged child. I have read the parent information handouts and feel able to provide feedback that may help improve the parent information handouts before the program is piloted in schools later this year.

I acknowledge that: taking part in this study in voluntary and I am aware that I can stop taking part at any time without explanation or prejudice; my name will not be used to identify my survey responses; de-identified data from this survey may be used by researchers in publications. I consent to participate in this project, the details of which have been explained to me, and I have been sent (via email) a written information statement to keep (see [Parent feedback information sheet 16.4.2020](#))

I consent to complete an online survey and for my response to be used for the purposes described above

☐ Yes, I consent (1)

☐ No, I do not consent (2)

End of Block: CONSENT

Start of Block: CONFIDENTIALITY AGREEMENT

Q2 CONFIDENTIALITY AGREEMENT

You have been provided with access to parent information handouts that are included in a school-based intervention program called *In My Shoes* (together, **Confidential Information**). *In My Shoes* has been developed based on research and is due to be trialled in schools in the Perth Metropolitan area later this year. In participating in this research you acknowledge and agree to keep the Confidential Information confidential and not share, use or distribute the Confidential Information without prior written consent from the primary author, Amy Hodges

(amy.hodges@curtin.edu.au).

I agree with the above confidentiality terms:

☐ I agree (1)

☐ I do not agree (2)

End of Block: CONFIDENTIALITY AGREEMENT

Start of Block: INSTRUCTIONS

Q3 INSTRUCTIONS

The survey should take less than 10 minutes to complete, however this may vary depending on your responses.

Remember that you can leave this survey (multiple times) and come back later to where you left off, if you use the same computer and same web-browser each time. You do not have to click a “save” button, just close the survey window and use the link to open the survey up again later.

Please make sure you have read the In My Shoes manual, completed the professional learning and reviewed outcome measures before responding to questions in the survey.

End of Block: INSTRUCTIONS

Start of Block: DEMOGRAPHICS

Q5 The purpose of the following questions is to gain demographic information about parents who complete the feedback survey.

Are you of Aboriginal or Torres Strait Islander origin?

☐ Yes, Aboriginal Australian (1)

☐ Yes, Torres Strait Islander (2)

☐ No (3)

Q6 Do you speak a language other than English at home?

☐ Yes, please specify (1) _____

☐ No (2)

Q7 How many children are in your family?

☐ 1 (1)

☐ 2 (2)

☐ 3 (3)

☐ 4 (4)

☐ 5 or more (5)

Q8 What is your relationship to your children?

☐ Mother (1)

☐ Father (2)

☐ Other, please specify (3) _____

Q9 Please indicate what year level your primary school aged children are in? (select all that apply)

☐

Year 1 (1)

☐

Year 2 (2)

☐

Year 3 (3)

☐

Year 4 (4)

☐

Year 5 (5)

☐

Year 6 (6)

Q10 Do you have any children with a developmental delay or diagnosed disability?

☐ Yes, please specify (1) _____

☐ No (2)

Q11 PARENT INFORMATION HANDOUTS

The following questions ask for your feedback on the content, delivery and presentation of the **parent information handouts**

	Strongly agree (1)	Somewhat agree (2)	Neither agree nor disagree (3)	Somewhat disagree (4)	Strongly disagree (5)
The parent information handouts are easy to read (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The parent information handouts are presented in a way that is engaging (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I understood the content of the parent information handouts (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I understood the examples provided in the parent information handouts and how these examples linked to the content (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The type of information provided in the parent information handouts is relevant (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The depth of information provided in the parent information handouts is appropriate (6)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

I would be able to apply at least some of the suggested strategies on the parent information handouts to help generalise my child's learning from In My Shoes to the home environment
(7)

☐ ☐ ☐ ☐ ☐

Display This Question:

If PARENT INFORMATION HANDOUTS The following questions ask for your feedback on the content, deliver... = The parent information handouts are easy to read [Neither agree nor disagree]

Or PARENT INFORMATION HANDOUTS The following questions ask for your feedback on the content, deliver... = The parent information handouts are easy to read [Somewhat disagree]

Or PARENT INFORMATION HANDOUTS The following questions ask for your feedback on the content, deliver... = The parent information handouts are easy to read [Strongly disagree]

Q12 Please make suggestions in how we can make the parent information handouts easier to read

Display This Question:

If PARENT INFORMATION HANDOUTS The following questions ask for your feedback on the content, deliver... = The parent information handouts are presented in a way that is engaging [Neither agree nor disagree]

Or PARENT INFORMATION HANDOUTS The following questions ask for your feedback on the content, deliver... = The parent information handouts are presented in a way that is engaging [Somewhat disagree]

Or PARENT INFORMATION HANDOUTS The following questions ask for your feedback on the content, deliver... = The parent information handouts are presented in a way that is engaging [Strongly disagree]

Q13 Please make suggestions in how we can improve the presentation of the parent information handouts

Display This Question:

If PARENT INFORMATION HANDOUTS The following questions ask for your feedback on the content, deliver... = I understood the content of the parent information handouts [Neither agree nor disagree]

Or PARENT INFORMATION HANDOUTS The following questions ask for your feedback on the content, deliver... = I understood the content of the parent information handouts [Somewhat disagree]

Or PARENT INFORMATION HANDOUTS The following questions ask for your feedback on the content, deliver... = I understood the content of the parent information handouts [Strongly disagree]

Q14 Please explain what you found difficult to understand and make any suggestions in how we can improve the parent information handouts.

Display This Question:

If PARENT INFORMATION HANDOUTS The following questions ask for your feedback on the content, deliver... = I understood the examples provided in the parent information handouts and how these examples linked to the content [Neither agree nor disagree]

Or PARENT INFORMATION HANDOUTS The following questions ask for your feedback on the content, deliver... = I understood the examples provided in the parent information handouts and how these examples linked to the content [Somewhat disagree]

Or PARENT INFORMATION HANDOUTS The following questions ask for your feedback on the content, deliver... = I understood the examples provided in the parent information handouts and how these examples linked to the content [Strongly disagree]

Q15 Please explain what examples and links you found difficult to understand and make suggestions in how we can improve examples and links provided.

Display This Question:

If PARENT INFORMATION HANDOUTS The following questions ask for your feedback on the content, deliver... = The type of information provided in the parent information handouts is relevant [Neither agree nor disagree]

Or PARENT INFORMATION HANDOUTS The following questions ask for your feedback on the content, deliver... = The type of information provided in the parent information handouts is relevant [Somewhat disagree]

Or PARENT INFORMATION HANDOUTS The following questions ask for your feedback on the content, deliver... = The type of information provided in the parent information handouts is relevant [Strongly disagree]

Q16 Please make suggestions in what we can add or remove from the parent information handouts.

Display This Question:

If PARENT INFORMATION HANDOUTS The following questions ask for your feedback on the content, deliver... = The depth of information provided in the parent information handouts is appropriate [Neither agree nor disagree]

Or PARENT INFORMATION HANDOUTS The following questions ask for your feedback on the content, deliver... = The depth of information provided in the parent information handouts is appropriate [Somewhat disagree]

Or PARENT INFORMATION HANDOUTS The following questions ask for your feedback on the content, deliver... = The depth of information provided in the parent information handouts is appropriate [Strongly disagree]

Q17 Please make suggestions in what we can simplify or expand on in the parent information handouts

Display This Question:

If PARENT INFORMATION HANDOUTS The following questions ask for your feedback on the content, deliver... = I would be able to apply at least some of the suggested strategies on the parent information handouts to help generalise my child's learning from In My Shoes to the home environment [Neither agree nor disagree]

Or PARENT INFORMATION HANDOUTS The following questions ask for your feedback on the content, deliver... = I would be able to apply at least some of the suggested strategies on the parent information handouts to help generalise my child's learning from In My Shoes to the home environment [Somewhat disagree]

Or PARENT INFORMATION HANDOUTS The following questions ask for your feedback on the content, deliver... = I would be able to apply at least some of the suggested strategies on the parent information handouts to help generalise my child's learning from In My Shoes to the home environment [Strongly disagree]

Q18 Please make suggestions in how we can make suggested strategies more achievable for parents

Q19 ACTIVE PARENT INVOLVEMENT

In My Shoes aims to actively involvement parents through: Parent information handouts – teachers are encouraged to send parents information handouts prior to implementing each module in the classroom. These handouts explain the content of each module and provide ideas of ways to generalise learning. Invitation to participate in Module 10 – this is the last module of the program that celebrates students learning and achievements. Parents are encouraged to help students develop a short presentation for the class of things they have learnt from *In My Shoes* and have a party at the end Invitations to participate in other classroom and whole-school activities – this is dependent on the activities that the school chooses to implement however could involve invitations to: assembly items related to *In My Shoes* content (e.g., school belonging, neurodiversity), autism acceptance or neuro-diversity morning tea, or sending out special newsletter items about topics covered in *In My Shoes*.

The proposed methods of parent involvement in *In My Shoes* are suitable

- ☐ Strongly agree (1)
- ☐ Somewhat agree (2)
- ☐ Neither agree nor disagree (3)
- ☐ Somewhat disagree (4)
- ☐ Strongly disagree (5)

Display This Question:

If ACTIVE PARENT INVOLVEMENT In My Shoes aims to actively involvement parents through: Parent informa... = Neither agree nor disagree

Or ACTIVE PARENT INVOLVEMENT In My Shoes aims to actively involvement parents through: Parent informa... = Somewhat disagree

Or ACTIVE PARENT INVOLVEMENT In My Shoes aims to actively involvement parents through: Parent informa... = Strongly disagree

Q21 You selected 'neither agree nor disagree', 'somewhat disagree' or 'strongly disagree' to the question - the proposed methods of parent involvement in *In My Shoes* are suitable. Please provide your reasoning here and make suggestions about how we can improve.

Q20 Do you have any more ideas of ways we can involve or include parents in *In My Shoes*?

☐ Yes, please specify (1) _____

☐ No (2)

End of Block: ACTIVE PARENT INVOLVEMENT

In My Shoes Teacher Feedback

Start of Block: CONSENT

Q1 INFORMED CONSENT

Thank-you for participating. This survey is for invited participants only. Before proceeding with this survey, you must consent to participate in this study. Please read the information below and respond accordingly.

I understand the aim of this survey is to obtain feedback on a school-based intervention (called *In My Shoes*) that aims to improve the school participation and feelings of connectedness of students with Autism Spectrum Disorder in Year 3 and 4 mainstream primary schools.

I have been asked to participate as I have relevant experience with students with Autism Spectrum Disorder and with students in Year 3 and 4. I have read the *In My Shoes* manual and completed the *In My Shoes* professional learning that has been sent to me. Based on this information, I feel able to provide feedback may help improve the program before it is piloted in schools later this year.

I acknowledge that: taking part in this study in voluntary and I am aware that I can stop taking part at any time without explanation or prejudice; my name will not be used to identify my survey responses. de-identified data from this survey may be used by researchers in publications.

I consent to participate in this project, the details of which have been explained to me, and I have been sent (via email) a written information statement to keep ([Teacher feedback information sheet 16.4.2020](#)).

☐ Yes, I consent (1)

☐ No, I do not consent (2)

End of Block: CONSENT

Start of Block: CONFIDENTIALITY AGREEMENT

Q2 CONFIDENTIALITY AGREEMENT

You have been provided with access to the *In My Shoes* school-based intervention program, which includes a manual, online professional learning and associated resources (together, Confidential Information). *In My Shoes* has been developed based on research and is due to be trialled in schools in the Perth Metropolitan area later this year. In participating in this research you acknowledge and agree to keep the Confidential Information confidential and not share, use or distribute the Confidential Information without prior written consent from the primary author, Amy Hodges (amy.hodges@curtin.edu.au).

I agree with the above confidentiality terms:

☐ I agree (1)

☐ I do not agree (2)

End of Block: CONFIDENTIALITY AGREEMENT

Start of Block: INSTRUCTIONS

Q3 INSTRUCTIONS

The survey should take less than 15 minutes to complete, however this may vary depending on your responses.

Remember that you can leave this survey (multiple times) and come back later to where you left off, if you use the same computer and same web-browser each time. You do not have to click a “save” button, just close the survey window and use the link to open the survey up again later.

Please make sure you have read the *In My Shoes* manual, completed the professional learning and reviewed outcome measures before responding to questions in the survey.

End of Block: INSTRUCTIONS

Start of Block: DEMOGRAPHICS

Q5 DEMOGRAPHICS

The purpose of this part of the survey is to gather information on the **demographics** of educators providing feedback on the *In My Shoes* program.

Please indicate which schooling sector you are currently working in

- ☐ Association of Independent Schools Western Australia (1)
- ☐ Department of Education (2)
- ☐ Private (3)
- ☐ Catholic Education of Western Australia (4)

Q6 Please indicate the option that best describes your current role

- ☐ Teacher (1)
- ☐ Principal (2)
- ☐ Deputy Principal (3)
- ☐ Learning Support Coordinator (4)
- ☐ School Psychologist (5)
- ☐ Other, please specify (6) _____

Q7 Please indicate the total number of years (full time equivalent) of experience you have as an educator

- ☐ 0 – 1 years (1)
- ☐ 2 – 3 years (2)
- ☐ 4 – 5 years (3)
- ☐ 6 – 7 years (4)
- ☐ 8 – 9 years (5)
- ☐ More than 10 years (6)

Q8 Please indicate the total number of years of experience you have teaching each year level

☐ Year 1 (1) _____

☐ Year 2 (2) _____

☐ Year 3 (3) _____

☐ Year 4 (4) _____

☐ Year 5 (5) _____

☐ Year 6 (6) _____

Q9 Approximately how many students with autism have you worked with in your working life?

☐ 1 student (1)

☐ 2 students (2)

☐ 3 students (3)

☐ 4 students (4)

☐ 5 students (5)

☐ More than 5 students (6)

Q10 On average, how many students with autism do you teach each year?

- ☐ 1 student (1)
- ☐ 2 students (2)
- ☐ 3 students (3)
- ☐ 4 students (4)
- ☐ 5 students (5)
- ☐ More than 5 students (6)

Q11 Have you participated in research before?

- ☐ Yes (1)
- ☐ No (2)

End of Block: DEMOGRAPHICS

Start of Block: MANUAL

Q12 *IN MY SHOES* MANUAL

The following questions ask for your feedback, generally, on the **In My Shoes manual**. Please try to be as detailed and as specific as you can in your written responses.

	Strongly agree (1)	Somewhat agree (2)	Neither agree nor disagree (3)	Somewhat disagree (4)	Strongly disagree (5)
The manual is easy to read (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The manual is easy to navigate (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The manual is presented in a way that is engaging (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The type of information provided in the manual is relevant (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The depth of information provided in the manual is appropriate (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I understood the content of the manual (6)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I understood the examples provided in the manual and how these examples linked to the content (7)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I understood instructions in how to use the manual (8)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Display This Question:

If IN MY SHOES MANUALThe following questions ask for your feedback, generally, on the In My Shoes ma...
= The manual is easy to read [Neither agree nor disagree]

Or IN MY SHOES MANUALThe following questions ask for your feedback, generally, on the In My Shoes ma...
= The manual is easy to read [Somewhat disagree]

Or IN MY SHOES MANUALThe following questions ask for your feedback, generally, on the In My Shoes ma...
= The manual is easy to read [Strongly disagree]

Q13 Please make suggestions in how we can make the manual easier to read.

Display This Question:

If IN MY SHOES MANUALThe following questions ask for your feedback, generally, on the In My Shoes ma...
= The manual is presented in a way that is engaging [Neither agree nor disagree]

And IN MY SHOES MANUALThe following questions ask for your feedback, generally, on the In My Shoes ma...
= The manual is presented in a way that is engaging [Somewhat disagree]

And IN MY SHOES MANUALThe following questions ask for your feedback, generally, on the In My Shoes ma...
= The manual is presented in a way that is engaging [Strongly disagree]

Q14 Please make suggestions in how we can make the manual easier to navigate.

Display This Question:

If IN MY SHOES MANUALThe following questions ask for your feedback, generally, on the In My Shoes ma...
= The manual is presented in a way that is engaging [Neither agree nor disagree]

Or IN MY SHOES MANUALThe following questions ask for your feedback, generally, on the In My Shoes ma...
= The manual is presented in a way that is engaging [Somewhat disagree]

Or IN MY SHOES MANUALThe following questions ask for your feedback, generally, on the In My Shoes ma...
= The manual is presented in a way that is engaging [Strongly disagree]

Q15 Please make suggestions in how we can improve the presentation of the manual.

Display This Question:

If IN MY SHOES MANUALThe following questions ask for your feedback, generally, on the In My Shoes ma...
= The type of information provided in the manual is relevant [Neither agree nor disagree]

Or IN MY SHOES MANUALThe following questions ask for your feedback, generally, on the In My Shoes ma...
= The type of information provided in the manual is relevant [Somewhat disagree]

Or IN MY SHOES MANUALThe following questions ask for your feedback, generally, on the In My Shoes ma...
= The type of information provided in the manual is relevant [Strongly disagree]

Q16 Please make suggestions in what we can add or remove from the manual.

Display This Question:

If IN MY SHOES MANUALThe following questions ask for your feedback, generally, on the In My Shoes ma...
= The depth of information provided in the manual is appropriate [Neither agree nor disagree]

Or IN MY SHOES MANUALThe following questions ask for your feedback, generally, on the In My Shoes ma...
= The depth of information provided in the manual is appropriate [Somewhat disagree]

Or IN MY SHOES MANUALThe following questions ask for your feedback, generally, on the In My Shoes ma...
= The depth of information provided in the manual is appropriate [Strongly disagree]

Q17

Please make suggestions in what we can simplify or expand on in the manual.

Display This Question:

If IN MY SHOES MANUALThe following questions ask for your feedback, generally, on the In My Shoes ma...
= I understood the content of the manual [Neither agree nor disagree]

Or IN MY SHOES MANUALThe following questions ask for your feedback, generally, on the In My Shoes
ma... = I understood the content of the manual [Somewhat disagree]

Or IN MY SHOES MANUALThe following questions ask for your feedback, generally, on the In My Shoes
ma... = I understood the content of the manual [Strongly disagree]

Q18 Please explain what you found difficult to understand and make any suggestions in how we can make the manual content easier to understand

Display This Question:

If IN MY SHOES MANUALThe following questions ask for your feedback, generally, on the In My Shoes ma...
= I understood the examples provided in the manual and how these examples linked to the content [Neither
agree nor disagree]

Or IN MY SHOES MANUALThe following questions ask for your feedback, generally, on the In My Shoes
ma... = I understood the examples provided in the manual and how these examples linked to the content [
Somewhat disagree]

Or IN MY SHOES MANUALThe following questions ask for your feedback, generally, on the In My Shoes
ma... = I understood the examples provided in the manual and how these examples linked to the content [
Strongly disagree]

Q19 Please explain what examples and links you found difficult to understand and make suggestions in how we can improve examples and links provided in the manual

Display This Question:

If IN MY SHOES MANUALThe following questions ask for your feedback, generally, on the In My Shoes ma...
= I understood instructions in how to use the manual [Neither agree nor disagree]

Or IN MY SHOES MANUALThe following questions ask for your feedback, generally, on the In My Shoes
ma... = I understood instructions in how to use the manual [Somewhat disagree]

Or IN MY SHOES MANUALThe following questions ask for your feedback, generally, on the In My Shoes
ma... = I understood instructions in how to use the manual [Strongly disagree]

Q20 Please explain the instructions that you found difficult to understand in the manual and make suggestions in how we can make them easier to understand.

Q21 Is there any content you expected to be in the manual that is not?

☐ Yes (1)

☐ No (2)

Display This Question:

If Is there any content you expected to be in the manual that is not? = Yes

Q22 Please explain what content you expected to see in the manual that you did not

Q23 Please indicate how you would prefer to access the In My Shoes manual and resources if you were implementing the program in your classroom

- ☐ Printed / hard copy (1)
- ☐ Electronic / soft copy (via USB) (2)
- ☐ Both (3)

Q24 Please indicate your preferred use of language to refer to student/s with autism in the *In My Shoes* manual (select as many that apply)

- ☐ Student/s with autism (person first) (1)
- ☐ Student/s with ASD (person first) (2)
- ☐ Student/s on the autism spectrum (person first) (3)
- ☐ Autistic student/s (identity first) (4)
- ☐ Other, please specify (5) _____

Q25 Please provide any further feedback you have about the In My Shoes manual (optional)

End of Block: MANUAL

Start of Block: LESSON PLANS

Q26 LESSON PLANS

The following questions ask for your feedback more specifically on *In My Shoes* lesson

plans. Please try to be as detailed and as specific as you can in your written responses, including the lesson and activity you are referring to as well as your recommended changes.

	Strongly agree (1)	Somewhat agree (2)	Neither agree nor disagree (3)	Somewhat disagree (4)	Strongly disagree (5)
The lesson plans are easy to read (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The lesson plans are presented in a way that is engaging as a teacher (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I understood the content of the lesson plans (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I understood the examples provided in the lesson plans and how these examples linked to the content (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I understood instructions in how to deliver the lesson plans to students (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The 45-minute time allocation for lesson plans is realistic (6)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The time allocated for individual activities in lesson plans is realistic (7)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

The type of activities included in lesson plans are fun and engaging (8)

☐☐☐☐☐

The type of activities included in lesson plans are age appropriate (9)

☐☐☐☐☐

The worksheets and resources are presented in a way that is fun and engaging for students (10)

☐☐☐☐☐

The student worksheets and resources are age appropriate (11)

☐☐☐☐☐

The PowerPoint resource provided, to use as an additional visual support while teaching lessons, is useful (12)

☐☐☐☐☐

There is sufficient detail in lesson plans about ways to scaffold students learning. (13)

☐☐☐☐☐

Links to state
and national
curriculum in
lesson plans
is clear and
accurate.
(14)



Display This Question:

If LESSON PLANS The following questions ask for your feedback more specifically on In My Shoes less... =
The lesson plans are easy to read [Neither agree nor disagree]

Or LESSON PLANS The following questions ask for your feedback more specifically on In My Shoes less... =
The lesson plans are easy to read [Somewhat disagree]

Or LESSON PLANS The following questions ask for your feedback more specifically on In My Shoes less... =
The lesson plans are easy to read [Strongly disagree]

Q27 Please make suggestions in ways we can make the lesson plans easier to read

Display This Question:

If LESSON PLANS The following questions ask for your feedback more specifically on In My Shoes less... =
The lesson plans are presented in a way that is engaging as a teacher [Neither agree nor disagree]

Or LESSON PLANS The following questions ask for your feedback more specifically on In My Shoes less... =
The lesson plans are presented in a way that is engaging as a teacher [Somewhat disagree]

Or LESSON PLANS The following questions ask for your feedback more specifically on In My Shoes less... =
The lesson plans are presented in a way that is engaging as a teacher [Strongly disagree]

Q28 Please make suggestions in how we can improve the presentation of the lesson plans.

Display This Question:

If LESSON PLANS The following questions ask for your feedback more specifically on In My Shoes less... = I understood the content of the lesson plans [Neither agree nor disagree]

Or LESSON PLANS The following questions ask for your feedback more specifically on In My Shoes less... = I understood the content of the lesson plans [Somewhat disagree]

Or LESSON PLANS The following questions ask for your feedback more specifically on In My Shoes less... = I understood the content of the lesson plans [Strongly disagree]

Q29 Please explain what you found difficult to understand and make any suggestions in how we can make the lesson plans easier to understand.

Display This Question:

If LESSON PLANS The following questions ask for your feedback more specifically on In My Shoes less... = I understood the examples provided in the lesson plans and how these examples linked to the content [Neither agree nor disagree]

Or LESSON PLANS The following questions ask for your feedback more specifically on In My Shoes less... = I understood the examples provided in the lesson plans and how these examples linked to the content [Somewhat disagree]

Or LESSON PLANS The following questions ask for your feedback more specifically on In My Shoes less... = I understood the examples provided in the lesson plans and how these examples linked to the content [Strongly disagree]

Q30 Please explain what examples and links you found difficult to understand and make suggestions in how we can improve examples and links provided in the lesson plans

Display This Question:

If LESSON PLANS The following questions ask for your feedback more specifically on In My Shoes less... = I understood instructions in how to deliver the lesson plans to students [Neither agree nor disagree]

Or LESSON PLANS The following questions ask for your feedback more specifically on In My Shoes less... = I understood instructions in how to deliver the lesson plans to students [Somewhat disagree]

Or LESSON PLANS The following questions ask for your feedback more specifically on In My Shoes less... = I understood instructions in how to deliver the lesson plans to students [Strongly disagree]

Q31 Please explain the instructions that you found difficult to understand in the lesson plans and make suggestions in how we can make them easier to understand

Display This Question:

If LESSON PLANS The following questions ask for your feedback more specifically on In My Shoes less... = The 45-minute time allocation for lesson plans is realistic [Neither agree nor disagree]

Or LESSON PLANS The following questions ask for your feedback more specifically on In My Shoes less... = The 45-minute time allocation for lesson plans is realistic [Somewhat disagree]

Or LESSON PLANS The following questions ask for your feedback more specifically on In My Shoes less... = The 45-minute time allocation for lesson plans is realistic [Strongly disagree]

Q32 Please make suggestions in how we can make the 45-minute time allocation more realistic.

Display This Question:

If LESSON PLANS The following questions ask for your feedback more specifically on In My Shoes less... =
The time allocated for individual activities in lesson plans is realistic [Neither agree nor disagree]

Or LESSON PLANS The following questions ask for your feedback more specifically on In My Shoes less... =
The time allocated for individual activities in lesson plans is realistic [Somewhat disagree]

Or LESSON PLANS The following questions ask for your feedback more specifically on In My Shoes less... =
The time allocated for individual activities in lesson plans is realistic [Strongly disagree]

Q33

Please make suggestions in how we can change activities to be more time realistic.

Display This Question:

If LESSON PLANS The following questions ask for your feedback more specifically on In My Shoes less... =
The type of activities included in lesson plans are fun and engaging [Neither agree nor disagree]

Or LESSON PLANS The following questions ask for your feedback more specifically on In My Shoes less... =
The type of activities included in lesson plans are fun and engaging [Somewhat disagree]

Or LESSON PLANS The following questions ask for your feedback more specifically on In My Shoes less... =
The type of activities included in lesson plans are fun and engaging [Strongly disagree]

Q34 *Please make suggestions in how we can make activities more fun and engaging.*

Display This Question:

If LESSON PLANS The following questions ask for your feedback more specifically on In My Shoes less... =
The type of activities included in lesson plans are age appropriate [Neither agree nor disagree]

Or LESSON PLANS The following questions ask for your feedback more specifically on In My Shoes less... =
The type of activities included in lesson plans are age appropriate [Somewhat disagree]

Or LESSON PLANS The following questions ask for your feedback more specifically on In My Shoes less... =
The type of activities included in lesson plans are age appropriate [Strongly disagree]

Q35 Please make suggestions in how we can make activities more age appropriate.

Display This Question:

If LESSON PLANS The following questions ask for your feedback more specifically on In My Shoes less... =
The worksheets and resources are presented in a way that is fun and engaging for students [Neither agree nor disagree]

Or LESSON PLANS The following questions ask for your feedback more specifically on In My Shoes less... =
The worksheets and resources are presented in a way that is fun and engaging for students [Somewhat disagree]

Or LESSON PLANS The following questions ask for your feedback more specifically on In My Shoes less... =
The worksheets and resources are presented in a way that is fun and engaging for students [Strongly disagree]

Q36 Please make suggestions in how we can improve the presentation of the student worksheets and resources

Display This Question:

If LESSON PLANS The following questions ask for your feedback more specifically on In My Shoes less... =
The student worksheets and resources are age appropriate [Neither agree nor disagree]

Or LESSON PLANS The following questions ask for your feedback more specifically on In My Shoes less... =
The student worksheets and resources are age appropriate [Somewhat disagree]

Or LESSON PLANS The following questions ask for your feedback more specifically on In My Shoes less... =
The student worksheets and resources are age appropriate [Strongly disagree]

Q37 Please make suggestions in how we can worksheets and resources more age appropriate

Display This Question:

If LESSON PLANS The following questions ask for your feedback more specifically on In My Shoes less... =
The PowerPoint resource provided, to use as an additional visual support while teaching lessons, is useful [Neither agree nor disagree]

Or LESSON PLANS The following questions ask for your feedback more specifically on In My Shoes less... =
The PowerPoint resource provided, to use as an additional visual support while teaching lessons, is useful [Somewhat disagree]

Or LESSON PLANS The following questions ask for your feedback more specifically on In My Shoes less... =
The PowerPoint resource provided, to use as an additional visual support while teaching lessons, is useful [Strongly disagree]

Q38 You selected 'neither agree nor disagree', 'somewhat disagree' or 'strongly disagree' to the question - the PowerPoint resource provided, to use as an additional visual support while teaching lessons, is useful. Please provide your reasoning here and make alternative suggestions.

Display This Question:

If LESSON PLANS The following questions ask for your feedback more specifically on In My Shoes less... =
There is sufficient detail in lesson plans about ways to scaffold students learning. [Neither agree nor disagree]

Or LESSON PLANS The following questions ask for your feedback more specifically on In My Shoes less... =
There is sufficient detail in lesson plans about ways to scaffold students learning. [Somewhat disagree]

Or LESSON PLANS The following questions ask for your feedback more specifically on In My Shoes less... =
There is sufficient detail in lesson plans about ways to scaffold students learning. [Strongly disagree]

Q39 Please make suggestions on additional information we can provide on scaffolding.

Display This Question:

If LESSON PLANS The following questions ask for your feedback more specifically on In My Shoes less... =
Links to state and national curriculum in lesson plans is clear and accurate. [Neither agree nor disagree]

Or LESSON PLANS The following questions ask for your feedback more specifically on In My Shoes less... =
Links to state and national curriculum in lesson plans is clear and accurate. [Somewhat disagree]

Or LESSON PLANS The following questions ask for your feedback more specifically on In My Shoes less... =
Links to state and national curriculum in lesson plans is clear and accurate. [Strongly disagree]

Q40 Please detail any specific links to state and national curriculum that are not clear or accurate and detail your recommended changes

Q41 Please provide any further feedback you have about *In My Shoes* lesson plans (optional)

Q42 **PROFESSIONAL LEARNING**

The following questions ask for your feedback about the content and delivery of professional

learning including **supplementary pre-reading**. Please try to be as detailed and as specific as you can in your written responses.

	Strongly agree (1)	Somewhat agree (2)	Neither agree nor disagree (3)	Somewhat disagree (4)	Strongly disagree (5)
The <i>supplementary information</i> is easy to read (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The <i>supplementary information</i> is presented in a way that is engaging (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I understood the content of the <i>supplementary information</i> (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The type of <i>supplementary information</i> provided is relevant (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The depth of <i>supplementary information</i> provided is appropriate (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The type of information provided in online <i>professional learning</i> presentations is relevant (6)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

The depth of information provided in the online **professional learning** presentations is appropriate (7)

☐☐☐☐☐

I understood the content of the online **professional learning** presentations (8)

☐☐☐☐☐

I understood the examples provided in the **professional learning** and how these examples linked to the content (9)

☐☐☐☐☐

I understood instructions in how to complete online **professional learning** presentations (10)

☐☐☐☐☐

The **professional learning** is presented in a way that is engaging (11)

☐☐☐☐☐

Display This Question:

If PROFESSIONAL LEARNING The following questions ask for your feedback about the content and deliver...
= The supplementary information is easy to read [Neither agree nor disagree]

Or PROFESSIONAL LEARNING The following questions ask for your feedback about the content and deliver... = The supplementary information is easy to read [Somewhat disagree]

Or PROFESSIONAL LEARNING The following questions ask for your feedback about the content and deliver... = The supplementary information is easy to read [Strongly disagree]

Q43 Please make suggestions in how we can make the **supplementary information** easier to read

Display This Question:

If PROFESSIONAL LEARNING The following questions ask for your feedback about the content and deliver... = The supplementary information is presented in a way that is engaging [Neither agree nor disagree]

Or PROFESSIONAL LEARNING The following questions ask for your feedback about the content and deliver... = The supplementary information is presented in a way that is engaging [Somewhat disagree]

Or PROFESSIONAL LEARNING The following questions ask for your feedback about the content and deliver... = The supplementary information is presented in a way that is engaging [Strongly disagree]

Q44 Please make suggestions in how we can make improve the presentation of the **supplementary information**

Display This Question:

If PROFESSIONAL LEARNING The following questions ask for your feedback about the content and deliver... = I understood the content of the supplementary information [Neither agree nor disagree]

Or PROFESSIONAL LEARNING The following questions ask for your feedback about the content and deliver... = I understood the content of the supplementary information [Somewhat disagree]

Or PROFESSIONAL LEARNING The following questions ask for your feedback about the content and deliver... = I understood the content of the supplementary information [Strongly disagree]

Q45 Please explain what you found difficult to understand in the **supplementary information** and make any suggestions in how we can improve

Display This Question:

If PROFESSIONAL LEARNING The following questions ask for your feedback about the content and deliver... = The type of supplementary information provided is relevant [Neither agree nor disagree]

Or PROFESSIONAL LEARNING The following questions ask for your feedback about the content and deliver... = The type of supplementary information provided is relevant [Somewhat disagree]

Or PROFESSIONAL LEARNING The following questions ask for your feedback about the content and deliver... = The type of supplementary information provided is relevant [Strongly disagree]

Q46 Please make suggestions in what we can add or remove from the **supplementary information**

Display This Question:

If PROFESSIONAL LEARNING The following questions ask for your feedback about the content and deliver...
= The depth of supplementary information provided is appropriate [Neither agree nor disagree]

Or PROFESSIONAL LEARNING The following questions ask for your feedback about the content and deliver...
= The depth of supplementary information provided is appropriate [Somewhat disagree]

Or PROFESSIONAL LEARNING The following questions ask for your feedback about the content and deliver...
= The depth of supplementary information provided is appropriate [Strongly disagree]

Q47 Please make suggestions in what we can simplify or expand on in the *supplementary information*

Display This Question:

If PROFESSIONAL LEARNING The following questions ask for your feedback about the content and deliver...
= The type of information provided in online professional learning presentations is relevant [Neither agree nor disagree]

Or PROFESSIONAL LEARNING The following questions ask for your feedback about the content and deliver...
= The type of information provided in online professional learning presentations is relevant [Somewhat disagree]

Or PROFESSIONAL LEARNING The following questions ask for your feedback about the content and deliver...
= The type of information provided in online professional learning presentations is relevant [Strongly disagree]

Q48 Please make suggestions in what content we can add or remove from *professional learning*

Display This Question:

If PROFESSIONAL LEARNING The following questions ask for your feedback about the content and deliver... = I understood the content of the online professional learning presentations [Neither agree nor disagree]

Or PROFESSIONAL LEARNING The following questions ask for your feedback about the content and deliver... = I understood the content of the online professional learning presentations [Somewhat disagree]

Or PROFESSIONAL LEARNING The following questions ask for your feedback about the content and deliver... = I understood the content of the online professional learning presentations [Strongly disagree]

Q49 Please explain what you found difficult to understand and make any suggestions in how we can improve the **professional learning**

Display This Question:

If PROFESSIONAL LEARNING The following questions ask for your feedback about the content and deliver... = I understood the examples provided in the professional learning and how these examples linked to the content [Neither agree nor disagree]

Or PROFESSIONAL LEARNING The following questions ask for your feedback about the content and deliver... = I understood the examples provided in the professional learning and how these examples linked to the content [Somewhat disagree]

Or PROFESSIONAL LEARNING The following questions ask for your feedback about the content and deliver... = I understood the examples provided in the professional learning and how these examples linked to the content [Strongly disagree]

Q50 Please explain what examples and links you found difficult to understand in the **professional learning** and make suggestions in how we can improve examples and links provided.

Display This Question:

If PROFESSIONAL LEARNING The following questions ask for your feedback about the content and deliver...
= I understood instructions in how to complete online professional learning
presentations [Neither agree nor disagree]

Or PROFESSIONAL LEARNING The following questions ask for your feedback about the content and deliver... = I understood instructions in how to complete online professional learning
presentations [Somewhat disagree]

Or PROFESSIONAL LEARNING The following questions ask for your feedback about the content and deliver... = I understood instructions in how to complete online professional learning
presentations [Strongly disagree]

Q51 Please explain the instructions that you found difficult to understand in the *professional learning* and make suggestions in how we can make them easier to understand

Display This Question:

If PROFESSIONAL LEARNING The following questions ask for your feedback about the content and deliver...
= The professional learning is presented in a way that is engaging [Neither agree
nor disagree]

Or PROFESSIONAL LEARNING The following questions ask for your feedback about the content and deliver... = The professional learning is presented in a way that is engaging [
Somewhat disagree]

Or PROFESSIONAL LEARNING The following questions ask for your feedback about the content and deliver... = The professional learning is presented in a way that is engaging [
Strongly disagree]

Q52 Please make suggestions in how we can improve the *professional learning*

Q53 Is there any information that you expected to see in the supplementary information that you did not?

☐ Yes (1)

☐ No (2)

Display This Question:

If Is there any information that you expected to see in the supplementary information that you did not? = Yes

Q54 Please explain what content you expected to see in the supplementary information that you did not

Q55 Is there any information that you expected to see in the online professional learning presentations that you did not?

☐ Yes (1)

☐ No (2)

Display This Question:

If Is there any information that you expected to see in the online professional learning presentatio... = Yes

Q56 Please explain what content you expected to see in the online professional learning presentations that you did not

Q57 Please indicate how you would prefer to access *In My Shoes* professional learning in the future

- ☐ As provided (i.e., series of short online presentations then choice of face to face or online debrief) (1)
- ☐ All online (2)
- ☐ All face to face (3)
- ☐ Other, please specify (4) _____

Q58 Please provide any further feedback you have about supplementary information and professional learning (optional)

End of Block: PROFESSIONAL LEARNING

Start of Block: OUTCOME MEASURES

Q59 OUTCOME MEASURES

The following questions ask for your feedback on **proposed outcome measures** to be used for research purposes in the feasibility study later in the year. Before answering these

questions, please read the **proposed time schedule** of research measurement and briefly scan relevant items of measures in attached document ([Proposedtimeschedule](#)).

	Strongly agree (1)	Somewhat agree (2)	Neither agree nor disagree (3)	Somewhat disagree (4)	Strongly disagree (5)
I understand the proposed time schedule and purpose of research measures (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The proposed research measures and time schedule is reasonable (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I understand and would be able to respond to items of all research measures (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Approximately 50 minutes to complete research measures and less than 60 minutes to participate in semi-structured interviews (in total), is reasonable for teachers to complete (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Approximately 60 minutes to complete research measures in the first and final week of the program is reasonable for students in the whole-class to complete (5)

☐ ☐ ☐ ☐ ☐

Approximately 3 minutes of time to complete an electronic survey four times a day for five days in the first and final week of the intervention is reasonable for student/s with autism to complete (6)

☐ ☐ ☐ ☐ ☐

Display This Question:

If OUTCOME MEASURES The following questions ask for your feedback on proposed outcome measures to... = I understand the proposed time schedule and purpose of research measures [Neither agree nor disagree]

Or OUTCOME MEASURES The following questions ask for your feedback on proposed outcome measures to... = I understand the proposed time schedule and purpose of research measures [Somewhat disagree]

Or OUTCOME MEASURES The following questions ask for your feedback on proposed outcome measures to... = I understand the proposed time schedule and purpose of research measures [Strongly disagree]

Q60 *Please explain what you found difficult to understand in the attached document and make suggestions in how we can make it easier to understand*

Display This Question:

If OUTCOME MEASURES The following questions ask for your feedback on proposed outcome measures to... = The proposed research measures and time schedule is reasonable [Neither agree nor disagree]

Or OUTCOME MEASURES The following questions ask for your feedback on proposed outcome measures to... = The proposed research measures and time schedule is reasonable [Somewhat disagree]

Or OUTCOME MEASURES The following questions ask for your feedback on proposed outcome measures to... = The proposed research measures and time schedule is reasonable [Strongly disagree]

Q61 You selected 'neither agree nor disagree', 'somewhat disagree' or 'strongly disagree' to the question - the proposed research measures and time schedule is reasonable. Please provide your reasoning and make suggestions of alternative options.

Display This Question:

If OUTCOME MEASURES The following questions ask for your feedback on proposed outcome measures to... = I understand and would be able to respond to items of all research measures [Neither agree nor disagree]

Or OUTCOME MEASURES The following questions ask for your feedback on proposed outcome measures to... = I understand and would be able to respond to items of all research measures [Somewhat disagree]

Or OUTCOME MEASURES The following questions ask for your feedback on proposed outcome measures to... = I understand and would be able to respond to items of all research measures [Strongly disagree]

Q62 Please provide details of measures or items that you found difficult to understand in the attached document

Display This Question:

If OUTCOME MEASURES The following questions ask for your feedback on proposed outcome measures to... = Approximately 50 minutes to complete research measures and less than 60 minutes to participate in semi-structured interviews (in total), is reasonable for teachers to complete [Neither agree nor disagree]

Or OUTCOME MEASURES The following questions ask for your feedback on proposed outcome measures to... = Approximately 50 minutes to complete research measures and less than 60 minutes to participate in semi-structured interviews (in total), is reasonable for teachers to complete [Somewhat disagree]

Or OUTCOME MEASURES The following questions ask for your feedback on proposed outcome measures to... = Approximately 50 minutes to complete research measures and less than 60 minutes to participate in semi-structured interviews (in total), is reasonable for teachers to complete [Strongly disagree]

Q63 You selected 'neither agree nor disagree', 'somewhat disagree' or 'strongly disagree' to the question - approximately 50 minutes to complete research measures and less than 60 minutes to participate in semi-structured interviews (in total), is reasonable for teachers to complete. Please provide your reasoning and make suggestions of alternative options.

Display This Question:

If OUTCOME MEASURES The following questions ask for your feedback on proposed outcome measures to... = Approximately 60 minutes to complete research measures in the first and final week of the program is reasonable for students in the whole-class to complete [Neither agree nor disagree]

Or OUTCOME MEASURES The following questions ask for your feedback on proposed outcome measures to... = Approximately 60 minutes to complete research measures in the first and final week of the program is reasonable for students in the whole-class to complete [Somewhat disagree]

Or OUTCOME MEASURES The following questions ask for your feedback on proposed outcome measures to... = Approximately 60 minutes to complete research measures in the first and final week of the program is reasonable for students in the whole-class to complete [Strongly disagree]

Q64 You selected 'neither agree nor disagree', 'somewhat disagree' or 'strongly disagree' to the question - approximately 60 minutes to complete research measures in the first and final week of the program is reasonable for the whole-class to complete. Please provide your reasoning and make suggestions of alternative options.

Display This Question:

If **OUTCOME MEASURES** The following questions ask for your feedback on proposed outcome measures to... = Approximately 3 minutes of time to complete an electronic survey four times a day for five days in the first and final week of the intervention is reasonable for student/s with autism to complete [Neither agree nor disagree]

Or **OUTCOME MEASURES** The following questions ask for your feedback on proposed outcome measures to... = Approximately 3 minutes of time to complete an electronic survey four times a day for five days in the first and final week of the intervention is reasonable for student/s with autism to complete [Somewhat disagree]

Or **OUTCOME MEASURES** The following questions ask for your feedback on proposed outcome measures to... = Approximately 3 minutes of time to complete an electronic survey four times a day for five days in the first and final week of the intervention is reasonable for student/s with autism to complete [Strongly disagree]

Q65 You selected 'neither agree nor disagree', 'somewhat disagree' or 'strongly disagree' to the question - approximately 3 minutes of time to complete an electronic survey four times a day for five days in the first and final week of the intervention is reasonable for student/s with autism to complete. Please provide your reasoning and make suggestions of alternative options.

Q66 Please indicate what your preference would be for the administration of video classroom observations if you were participating in the program.

- ☐ Teacher to set up video camera and record class while teaching and send to researcher (1)
- ☐ Researcher to visit classroom and conduct video-recording (2)
- ☐ Other, please specify (3) _____

Q67 Please indicate what your preference would be for administration of student questionnaires if you were participating in the program.

- ☐ Teacher to administer with students at a time that is convenient to him/her within set time period (1)
- ☐ Researcher to visit classroom and administer measures with students (2)
- ☐ Other, please specify (3) _____

Q68 Please provide any further feedback you have about proposed research measures and time schedule (optional)

End of Block: OUTCOME MEASURES

Appendix F5: Summary of Online Parent Feedback on Parent Information Handouts

Questions Parents (n=11)	Response (%)				
	SA	SWA	NAND	SWD	SD
The parent information handouts are easy to read	46	54	0	0	0
The parent information handouts are presented in a way that is engaging	62	30	0	8	0
I understood the content of the parent information handouts	85	15	0	0	0
I understood the examples provided in the parent information handouts and how these examples linked to content	78	22	0	0	0
The type of information provided in the parent information handouts is relevant	62	38	0	0	0
The depth of information provided in the parent information handouts is appropriate	62	22	8	0	8
I would be able to apply at least some of the suggested strategies on the parent information handouts to help generalise my child's learning from In My Shoes to the home environment	69	8	8	0	0
The proposed methods of parent involvement in In My Shoes are suitable	62	15	8	0	0
<i>Note. SA= strongly agree; SWA = somewhat agree; NAND = neither agree nor disagree; SWD = somewhat disagree; SD = strongly disagree</i>					

Appendix F6: Summary of Online Teacher Feedback on Intervention Manual and Data Collection Procedures

Questions Educators (n=10)	Response (%)				
	SA	SWA	NAND	SWD	SD
<i>Intervention manual</i>					
The manual is easy to read	80	20	0	0	0
The manual is easy to navigate	60	20	20	20	20
The manual is presented in a way that is engaging	70	30	0	0	0
The type of information provided in the manual is relevant	70	30	0	0	0
The depth of information provided in the manual is appropriate	90	10	0	0	0
I understood the content of the manual	90	10	0	0	0
I understood the examples provided in the manual and how these examples linked to content	90	10	0	0	0
I understood instructions in how to use the manual	70	30	0	0	0
<i>Lesson plans</i>					
The lesson plans are easy to read	60	40	0	0	0
The lesson plans are presented in a way that is engaging as a teacher	60	40	0	0	0
I understood the content of the lesson plans	90	10	0	0	0
I understood the examples provided in the lesson plans and how these examples linked to the content	90	10	0	0	0
I understood instructions in how to deliver the lesson plans to students	90	10	0	0	0

Questions	Response (%)				
	SA	SWA	NAND	SWD	SD
<i>Educators (n=10)</i>					
The 45 minute time allocation for lesson plans is realistic	30	50	10	10	0
The time allocated for individual activities in lesson plans is realistic	50	30	10	10	0
The type of activities included in lesson plans are age appropriate	70	30	0	0	0
The worksheets and resources are presented in a way that is fun and engaging for students	50	50	0	0	0
The PowerPoint resource provided, to use as an additional visual support while teaching lessons, is useful	80	20	0	0	0
There is sufficient detail in lesson plans about ways to scaffold students learning	70	30	0	0	0
Links to state and national curriculum in lesson plans is clear and accurate	90	10	0	0	0
<i>Supplementary pre-reading</i>					
The supplementary information is easy to read	60	40	0	0	0
The supplementary information is presented in a way that is engaging	70	20	10	0	0
I understood the content of the supplementary information	90	10	0	0	0
The type of supplementary information provided is relevant	90	10	0	0	0
The depth of supplementary information provided is appropriate	80	20	0	0	0
The type of information provided in online professional learning presentations is relevant	90	10	0	0	0
The depth of information provided in online professional learning is appropriate	90	10	0	0	0
I understood the content of online professional learning presentations	90	10	0	0	0

Questions	Response (%)				
	SA	SWA	NAND	SWD	SD
Educators (n=10)					
I understood the examples provided in the professional learning and how these examples linked to the content	90	10	0	0	0
I understood instructions in how to complete online professional learning presentations	70	30	0	0	0
The professional learning is presented in a way that is engaging	80	20	0	0	0
<i>Outcome measures</i>					
I understand the proposed time schedule and purpose of research measures	50	50	0	0	0
The proposed research measures and time schedule is reasonable	40	30	20	10	0
I understand and would be able to respond to items of all research measures	40	50	10	0	0
Approximately 50 minutes to complete research measures and less than 60 minutes to participate in semi-structured interviews (in total), is reasonable for teachers to complete	20	60	10	10	0
Approximately 60 minutes to complete research measures in the first and final week of the program is reasonable for students in the whole-class to complete	20	30	0	50	0
Approximately 3 minutes of time to complete an electronic survey four times a day for five days in the first and final week of the intervention is reasonable for students on the autism spectrum to complete	40	20	0	30	10
Please indicate what your preference would be for administration of student questionnaires if you were participating in the program	Teacher to administer (90)		Researcher to administer (10)		

Questions	Response (%)				
	SA	SWA	NAND	SWD	SD
Educators (n=10)					
Please indicate how you would prefer to access In My Shoes professional learning in the future	All online (20)		As provided (80)		
Please indicate how you would prefer to access In My Shoes manual and resources if you were implementing the program in your classroom	Electronic/ soft copy (20)		Both (80)		
Please indicate your preferred use of language to refer to students/ with autism in the In My Shoes manual (select as many that apply)	Identity first (10%)		Person first (90)		
Is there any information that you expected to see in the supplementary information that you did not?	No (100)				
Is there any information you expected to see in the online professional learning presentations that you did not?	No (100)				
Is there any content you expected in the manual that is not?	No (100)				
<i>Note. SA= strongly agree; SWA = somewhat agree; NAND = neither agree nor disagree; SWD = somewhat disagree; SD = strongly disagree</i>					

Appendix F7: One-page Overview of In My Shoes Developed Following Parent Feedback



OVERVIEW OF IN MY SHOES

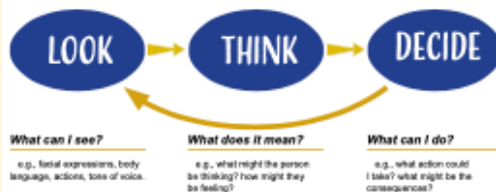
A school based social inclusion program for year 3 and 4 mainstream classrooms

What are the aims of In My Shoes?

1. Increased understanding and awareness of differences in the way students experience autism and school;
2. Increased self-awareness of strengths and differences and the strengths and differences of peers;
3. Improved confidence in abilities to recognise when someone needs help, how to help others and ask for help at school;
4. Increased feelings of being accepted, respected, included and supported by others in the school social environment; and
5. Improved student interpersonal empathy and use of pro-social (or helping) behaviours to include peers in the classroom and playground.

Why is the program called In My Shoes?

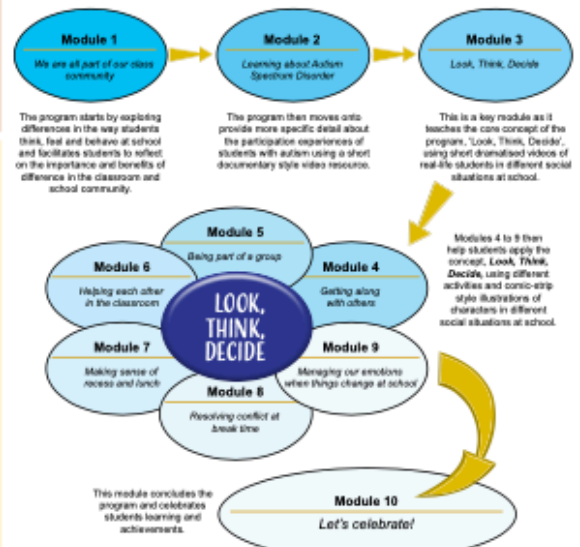
In My Shoes teaches perspective taking and social problem-solving skills by helping students to recognise body clues and how to use these to figure out what someone else might be thinking and feeling, so that they can decide on the best course of action to help peers participate and feel included, using the tool – Look, Think, Decide.



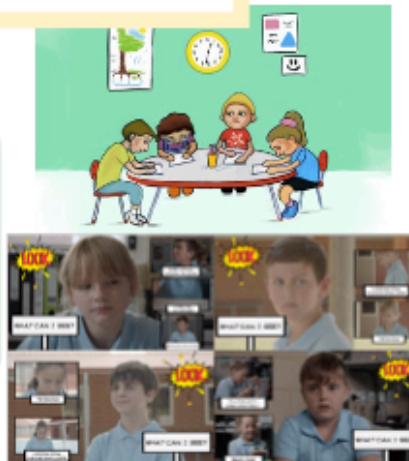
What does In My Shoes include?



Overview of whole class program



Here are some of examples of the comic-strip and video resource's included in the program!



Look out for the orange boxes in parent information handouts for ways you can generalise your child's learning at home!

How can you help generalise learning at home?

- ❑ Ask your child to share information from their profile with you.
- ❑ Ask your child which character they relate with the most and why.

INSTRUCTIONS FOR TEACHERS FOR STUDENT QUESTIONNAIRES

As you are aware, your class is participating in a research study to evaluate the effectiveness and feasibility of a program called *In My Shoes*. In order to measure changes in students before and after the program, students will be required to complete a series of questionnaires in the first and final week of delivering the program.

Please note:

- ☐ It is important to refer to this document when administering student questionnaires.
- ☐ Please make sure you read instructions to students as they are written in this document and use a loud, clear voice.
- ☐ It is recommended that you split the completion of student questionnaires over multiple days to avoid student fatigue. Estimated completion times are detailed below as well as specific student instructions for each questionnaire.

Before every questionnaire please:

- ☐ Ask students to use a pencil;
- ☐ Ask students to write their name and the date on their questionnaire;
- ☐ Reassure students that there is no right or wrong answer;
- ☐ Tell students to not write their answers until you have finished reading each item aloud;
- ☐ Tell students that all answers will be confidential – that means nobody at school will see what they have put down for any of the questions.

The following questionnaire need to be completed at the beginning AND end of Module 2 (Learning about Autism Spectrum Disorders)

My understanding of Autism Spectrum Disorder

- designed to evaluate changes in students understanding of ASD after delivery of ASD specific module.
- utilises a True/False response format to series of statements about ASD.

“This survey is to help me see how much you know about Autism Spectrum Disorders. We will be doing the survey now and then at the end of today’s lesson to see if your understanding has changed at all. Please make sure you have put your name and the date at the top of the page.

I will read each question out loud. You need to circle either True or False to each question. Please wait until I’ve finished reading the question before circling your answer. Let’s do an example together – “all pigs can fly” – True or False? [wait for response], False!”

Read each item out loud and allow approximately 10 seconds for students to respond.

The following questionnaires need to be completed in the first AND final week of delivering *In My Shoes* – that is *before* you teach Module 1 and *after* you teach Module 10.

In My Shoes

- designed to evaluate changes in students understanding of program content.

“This survey asks you how you would respond in different situations at school and is based on the information that we will be covering in In My Shoes. Please make sure you have put your name and date at the top of the page.

<ul style="list-style-type: none"> • utilises a multiple-choice response format to a series of situation-based questions 	<p><i>I will read each question out loud. You need to circle the answer that best describes how YOU would respond in this situation. There is no one right or wrong answer – everyone responds to situations differently. Please just try to be as honest as you can. Please also wait until I’ve finished reading the situation and the answers out loud before you circle your answer. If you have any questions, please raise your hand.</i></p>
<hr/> <p>In the past week at school</p>	
<ul style="list-style-type: none"> • designed to evaluate changes in students confidence in recognising when someone needs help, how to help others and ask for help at school. • uses 4-point Likert scale response format from very confident to not at all confident. 	<p><i>“This survey asks you how confident you feel in:</i></p> <ul style="list-style-type: none"> - <i>recognising when someone needs help,</i> - <i>how to help others and</i> - <i>ask for help at school.</i> <p><i>You need to answer the questions based on how you felt in the last week. Please make sure you have put your name and date at the top of the page.</i></p> <p><i>I will read each question out loud. You need to circle either – very confident, confident, not confident or not at all confident. There is no right or wrong answer - please just try to be as honest as you can. Please also wait until I’ve finished reading the question before you circle your answer”</i></p>
<p>Elementary School Engagement Instrument</p> <ul style="list-style-type: none"> • designed to evaluate changes in students feelings of connectedness before and after • uses 5-point Likert scale response format from strongly agree to strongly disagree 	<ul style="list-style-type: none"> • Read questionnaire items aloud with 3 to 5 second pauses between items depending on the reading levels within the class • Items should be read with brief pauses between the general text and parenthetical sections to aid in understanding, e.g., “extracurricular (after school) activities” • Plural versions should be used for items with a plural option, e.g., “parent/guardian(s)”. • Choices (i.e., “strongly agree” to “strongly disagree”) are described during the introduction. Following the introduction, the questions can be read without the choices. • If students ask, they may work ahead on items if the Advisor’s pace of reading is too slow for them. <p><i>“Today we have a questionnaire to learn about your experiences while attending this school. Your responses will be confidential: no one at this school will see your individual answers. To keep them confidential, I will select a student to collect the questionnaires and seal them inside an envelope before sending them to the central office. Reports of the survey results will show only summarized data. Your honest answers will be used to help me and the school serve you and other students better. Do not begin marking answers until we discuss the directions and I begin to read the</i></p>

	<p>questionnaire items aloud. For the questionnaire you will be choosing how much you agree with the statement by selecting from 'strongly agree,' 'agree,' 'in the middle,' 'disagree,' or 'strongly disagree.' For each item mark only one answer by circling it with your pencil. If you make a mistake or change your mind, erase your old answer entirely and fill in your new answer. I'll be reading the items so that I can respond to any questions you might have right away. If you have any questions about the items I'm reading or if you need a bit more time with an item be sure to let me know." Once finished "Thank you for your time and opinions."</p>
<p>Belonging Scale</p> <ul style="list-style-type: none"> ○ designed to assesses sense of belonging to school ○ uses 3-point scale of no not true to yes true 	<p>It is recommended that each item is read aloud while students follow the wording on their questionnaire sheet. The response categories can also be read out for the first few questions to help ensure that students understand what to do:</p> <p><i>"I will read each sentence and I would like you to think if it is true for you or not. If you think it is true you circle YES, if you think it is not true you circle NO. If you are not sure whether it is true or not you circle the question mark. Let's do the first one as a practice... I would like you to tell me if this is true for you or not: I feel happy drawing pictures."</i></p> <p>Circulate around the class and check everyone has understood the task. Remind students there are no right or wrong answers and that they should put their hand up if there is anything they do not understand.</p>
<p>Involvement</p> <ul style="list-style-type: none"> ○ designed to assess students' general feelings towards school ○ uses a 3-point scale of no not true, not sure and yes true. 	<p><i>"This survey asks you some general questions about how you feel towards school. Please make sure you have put your name and date at the top of the page."</i></p> <p><i>I will read each statement out loud. You need to circle the answer that best describes how you feel – whether the statement is "no not true", "not sure" or "yes true". There is no one right or wrong answer. Please just try to be as honest as you can. Please also wait until I've finished reading the statement before you circle your answer. If you have any questions, please raise your hand.</i></p> <p>Read each item and answer out loud and allow approximately 10 seconds for students to respond.</p>

Appendix G: Feasibility

Appendix G1: Parent of Student on the Autism Spectrum Information Sheet and Consent Form

PARENT / CAREGIVER **PILOT INFORMATION STATEMENT**

HREC Project Number:	<i>HREC2016-0150</i>
Project Title:	The development and evaluation of a school-based intervention for improving participation in school occupations and sense of school connectedness for primary school students with Autism Spectrum Disorder.
Principal Investigator:	<i>Associate Professor Reinie Cordier</i>
Student Investigator	<i>Amy Hodges</i>
Version Number:	<i>Version 4</i>
Version Date:	21.5.2020

What is the Project About?

There are increasing numbers of students with Autism Spectrum Disorder (ASD) enrolling in mainstream schools. Sometimes, students with ASD experience challenges in a mainstream school environment. We wish to investigate how students feel they belong: a term referred to as 'school connectedness'. Lack of school connectedness has been found to have an impact on students' mental health and wellbeing. Many programs aim to support students with ASD to develop their social skills but there is a gap in interventions that support students with the range of challenges they may experience across the school day. This project aims to develop and evaluate an intervention to improve the participation of students with ASD, so they feel connected and included at school. The project involves three Phases. Phase One involved developing the intervention by reviewing the literature and talking with parents, teachers and researchers about what is important to include in the intervention and how it should be implemented. Phase Two involved gaining feedback from parents, teachers and students about different parts of the intervention using online surveys. Phase Three will involve piloting the intervention in multiple classrooms to see whether it is effective and to see whether it is easy to use in a busy classroom environment. We are up to Phase Three of the research.

Who is doing the Research?

The project is being conducted by Amy Hodges, under the supervision of A/Prof Reinie Cordier, A/Prof Annette Joosten and A/Prof Helen Bourke-Taylor. The results of this research project will be used by Amy Hodges to obtain a Doctor of Philosophy (Occupational Therapy) at Curtin University.

Why am I being asked to take part and what will I have to do?

We are looking for a mainstream Year 3 or 4 classroom that has at least one student with ASD in the Perth Metropolitan Area to take part in piloting the developed intervention. Students with ASD need to be able to read at a Year 1 level and be able to complete a survey set at a Year 1 level. Your child and their class has been asked to take part, as your child has a diagnosis of ASD and meets the above criteria. To participate, we will need to look at your child's diagnostic report to confirm their diagnosis of ASD. We will also need to complete a few screening assessments which will help us to gather information about your child's communication skills, social skills and behaviour at home and school. One of the screening assessments will involve you and your child's teacher completing a rating scale that asks questions about your child's social skills and behaviour at home and school. This should take no longer than 20 minutes to complete. Participation will involve the classroom teacher incorporating the developed intervention, called *In My Shoes*, into their classroom routine over the course of a term. *In My Shoes* is a whole-class social inclusion program that teaches social problem solving and perspective taking skills; focusing on supporting peers to include students with ASD (and *all* students) in the classroom and playground. The intervention is manualised and includes weekly modules addressing core concepts and skills with 'ready to go' resources such as lesson plans and activity sheets. It is directly linked to state and national curriculum, so will not be something the teacher needs to do on top of existing curriculum. We will provide the teacher with training about how to use *In My Shoes* and its resources. We will ask the teacher to get their students to complete a simple questionnaire during class time to get their perceptions of the classroom environment. This should take no longer than 15 minutes to complete.

In the first and final week of the intervention and at intervals throughout the intervention, we will collect information about the quality of your child's experience using an electronic survey. This survey will be loaded onto a smart device so that it can be easily transported around the school grounds. Your child will be prompted by a 'beep' to complete the survey approximately 5 times during school hours at random generated by the device. The survey will include ask questions like "where were you when you heard the beep?", "what was the main thing that you were doing?" and "who were you talking to?" and will take no longer than 2 minutes to complete. It will also ask your child rate the quality of their experience relating to their level of enjoyment as well as their emotions. The survey will be trialled with two typically developing students to make sure the questions are clear and developmentally appropriate. Survey questions will be set at a Year 1 level so your child should be able to complete it independently. Depending on your child and the situation, the teacher, education assistant or a peer may be required at times to prompt your child to complete the survey. We will provide the teacher and your child training in how to use the smart device and complete the survey. The survey will help us to collect information about the quality of your child's experience at school so we can compare this to their participation and see if it changes over the course of the intervention.

In the first and final week of the intervention, we will take observations of the whole-class. The person conducting the observations will video record students in the classroom for up to 30 minutes on two separate days. They will then use this video to record your child's behaviour on standardised observational measure.

This will help us to collect information about your child's level of participation in the classroom and whether this changes over the course of the intervention. At the end of the intervention, we will ask the teacher and the class to give us feedback on the intervention by answering a short survey. We will ask the teacher, your child and a select number of students to provide additional feedback by interview. We will ask questions such as "what was the most beneficial aspect of the program?" and "what do you think could be improved?". This information will help us to refine the intervention prior to using it with more schools.

In the first and final week of the intervention, your child will be asked to complete a short survey that will ask questions about their sense of school connectedness. It will take no longer than 20 minutes to complete. All information will be de-identified. Information collected from questionnaires, observations, surveys and interviews will be analysed and only group information will be reported. There will be no cost to you or your child for taking part in this research and you will not be paid for participating in the research.

Are there any benefits' to being in the research project?

There may be no direct benefit to you or your child from participating in this research. Sometimes, people like to be involved in research that may have a positive impact. While the intervention has been developed based on the challenges students with ASD experience in mainstream school, it is anticipated the intervention will have a positive impact on all students in the classroom. The anticipated outcomes of the intervention are listed below:

- Increase students' understanding and awareness of differences in the way people think, feel and behave and Autism Spectrum Disorders;
- Increase students' self-awareness of individual strengths and differences and the strengths and differences of peers;
- Improve students' confidence in abilities to recognise when someone needs help, how to help others and ask for help at school;
- Increase students' feelings of being accepted, respected, included and supported by others in the school social environment and
- Improve students interpersonal empathy and use of pro-social (or helping) behaviours to include peers in the classroom and playground.

We hope the results of this research will help us to refine the intervention prior to piloting it with more schools.

Are there any risks, side-effects, discomforts or inconveniences from being involved in the research project?

There are no foreseeable risks from this research project. We have been careful to make sure the questionnaires; observations and surveys are as minimally intrusive as possible. It is not the researchers intention to single out the student with ASD in any way. Observations will be taken of the whole-class as well as the student with ASD. If your child's involvement in the research causes you concern or distresses you in any

way, we can refer you to a counsellor. Similarly, if your child becomes upset during the intervention, we can refer you to appropriate counselling and professional services.

Who will have access to my information?

Any information we collect will be treated as confidential and used only in this project unless otherwise specified. Only the research team will have access to the information. The information collected in this research will be re-identifiable which means we will remove identifying information on any data and replace it with a code. The code will be stored separately from the participant data. Hardcopies of the information we collect in this study will be kept under secure conditions in the School of Occupational Therapy and Social Work at Curtin University. Electronic data will be password-protected and hard copy data (including audio tapes) will be in locked storage. It will be kept for a period of 25 years after the research has ended and then it will be destroyed. You have the right to access, and request correction of, your child's information in accordance with relevant privacy laws. The results of this research may be presented at conferences or published in professional journals. Your child will not be identified in any results that are published or presented.

Will you tell me the results of the research?

We will send the classroom teacher a summary of the findings from the trial and detail how these will contribute towards the development of the intervention. The teacher should receive these results within 3 months of participating in the research. You can request to view this information if you are interested. We will also make the results available through publication in scientific peer reviewed journals.

Do I have to take part in the research project?

Taking part in a research project is voluntary. It is your choice whether your child participates or not. You do not have to agree if you do not want to. If you decide to take part and then change your mind, that is okay, you can withdraw from the project. You do not have to give us a reason; just tell us that you want to stop. If you chose to leave the study we will use any information collected unless you tell us not to.

What happens next and who can I contact about the research?

If you decide to take part in this research we will ask you to sign the consent form. By signing it is telling us that you understand what you have read and what has been discussed. Signing the consent indicates that you for your child to take part in the research project. Please take your time and ask any questions you have before you decide what to do. You will be given a copy of this information and the consent form to keep. If you have any questions or would like to discuss the research further you can contact Amy Hodges on amy.hodges@curtin.edu.au or 0419383169.

Curtin University Human Research Ethics Committee (HREC) has approved this study (HREC2016-0150). Should you wish to discuss the study with someone not directly involved, in particular, any matters concerning the conduct of the study or your rights as a participant, or you wish to make a confidential complaint, you may

contact the Ethics Officer on (08) 9266 9223 or the Manager, Research Integrity on (08) 9266 7093 or email hrec@curtin.edu.au.

PARENT / CAREGIVER

PILOT CONSENT FORM

HREC Project Number:	<i>HREC2016-0150</i>
Project Title:	<i>The development and evaluation of a school-based intervention for improving participation in school occupations and sense of school connectedness for primary school students with Autism Spectrum Disorder.</i>
Principal Investigator:	<i>Associate Professor Reinie Cordier</i>
Student Investigator	<i>Amy Hodges</i>
Version Number:	<i>Version 4</i>
Version Date:	<i>21.5.2020</i>

- I have read the information statement version listed above and I understand its contents.
- I believe I understand the purpose, extent and possible risks of my child's involvement in this project.
- I voluntarily consent for my child to take part in this research project.
- I have had an opportunity to ask questions and I am satisfied with the answers I have received.
- I understand that this project has been approved by Curtin University Human Research Ethics Committee and will be carried out in line with the National Statement on Ethical Conduct in Human Research (2007).
- I understand I will receive a copy of this Information Statement and Consent Form.
- I consent to my child being video recorded.

Participant Name	
Caregiver Name	
Caregiver Signature	
Date	

OPTIONAL CONSENT

<input type="checkbox"/> I do	<input type="checkbox"/> I do not	consent to be contacted about future research projects that are related to this project
<input type="checkbox"/> I do	<input type="checkbox"/> I do not	consent to the storage and use of my information in future ethically-approved research projects related to this (project/disease)

Declaration by researcher: I have supplied an Information Letter and Consent Form to the participant who has signed above, and believe that they understand the purpose, extent and possible risks of their involvement in this project.

Researcher Name	Amy Hodges
Researcher Signature	
Date	

CHILD ASSENT

We are doing a research study to see if a program at school helps students to be more involved and feel a part of the school community. Your teacher will be running different activities during the week that are related to this program. We will ask you to complete a short survey and provide feedback at the end of the program about what you thought was good and what you thought was bad. There will be someone that comes into the classroom to take some notes on what the class is doing from time to time. You do not have to be in the study if you do not want to be. If you decide to stop after we begin, that is OK too. Your parents know about the study too.

If you decide you want to be in the study please sign your name.

I, _____, want to be in this research study.

(sign your name here)

Date

Declaration by researcher: I have supplied an Information Letter and Consent Form to the participant who has signed above, and believe that they understand the purpose, extent and possible risks of their involvement in this project.

Researcher Name	Amy Hodges
Researcher Signature	
Date	

Appendix G2: Parent of Typically Developing Students Information Sheet and Consent Form

PARENT / CAREGIVER

PILOT INFORMATION STATEMENT

HREC Project Number:	<i>HREC2016-0150</i>
Project Title	The development and evaluation of a school-based intervention for improving participation in school occupations and sense of school connectedness for primary school students with Autism Spectrum Disorder
Principal Investigator:	<i>Associate Professor Reinie Cordier</i>
Student Investigator	<i>Amy Hodges</i>
Version Number:	<i>Version 4</i>
Version Date:	21.05.2020

What is the Project About?

There are increasing numbers of students with Autism Spectrum Disorder (ASD) enrolling in mainstream schools. Sometimes, students with ASD experience challenges in a mainstream school environment. We wish to investigate how students feel they belong: a term referred to as 'school connectedness'. Lack of school connectedness has been found to have an impact on students' mental health and wellbeing. Many programs aim to support students with ASD to develop their social skills but there is a gap in interventions that support students with the range of challenges they may experience across the school day. This project aims to develop and evaluate an intervention to improve the participation of students with ASD, so they feel connected and included at school. The project involves three Phases. Phase One involved developing the intervention by reviewing the literature and talking with parents, teachers and researchers about what is important to include in the intervention and how it should be implemented. Phase Two involved gaining feedback from parents, teachers and students about different parts of the intervention using online surveys. Phase Three will involve piloting the intervention in multiple classrooms to see whether it is effective and to see whether it is easy to use in a busy classroom environment. We are up to Phase Three of the research.

Who is doing the Research?

The project is being conducted by Amy Hodges, under the supervision of A/Prof Reinie Cordier, A/Prof Annette Joosten and A/Prof Helen Bourke-Taylor. The results of this research project will be used by Amy Hodges to obtain a Doctor of Philosophy (Occupational Therapy) at Curtin University.

Why am I being asked to take part and what will I have to do?

We are looking for mainstream Year 3 or 4 classrooms that have at least one student with ASD in the Perth Metropolitan Area to take part in piloting the developed intervention. Students with ASD need to be able to read at a Year 1 level and be able to complete a survey set at a Year 1 level. Your child's classroom has been asked to participate, as it meets these criteria. Participation will involve the classroom teacher incorporating the developed intervention, called *In My Shoes*, into their classroom routine over the course of a term. *In My Shoes* is a whole-class social inclusion program that teaches social problem solving and perspective taking skills; focusing on supporting peers to include students with ASD (and *all* students) in the classroom and playground. The intervention is manualised and includes weekly modules addressing core concepts and skills with 'ready to go' resources such as lesson plans and activity sheets. It is directly linked to state and national curriculum, so will not be something the teacher needs to do on top of existing curriculum. We will provide the teacher with training about how to use *In My Shoes* and its resources. In the first and final week of the intervention, we will ask the teacher to get students to complete simple questionnaires to help to see whether the intervention was effective and take observations of the whole-class. The teacher or researcher will video record students in class for up to 30 minutes on two separate days. The researcher will then use this video to record students' behaviour using an observational measure. At the end of the intervention, we will ask the teacher and students to give us feedback on the intervention by answering a short survey. All information will be de-identified. Information collected will be analysed and only group information will be reported. There will be no cost to you or your child for taking part in this research and you will not be paid for participating in the research.

Are there any benefits' to being in the research project?

There may be no direct benefit to you or your child from participating in this research. Sometimes, people like to be involved in research that may have a positive impact. While the intervention has been developed based on the challenges students with ASD experience in mainstream school, it is anticipated the intervention will have a positive impact on all students in the classroom. The anticipated outcomes of the intervention are listed below:

- Increase students' understanding and awareness of differences in the way people think, feel and behave and Autism Spectrum Disorders;
- Increase students' self-awareness of individual strengths and differences and the strengths and differences of peers;
- Improve students' confidence in abilities to recognise when someone needs help, how to help others and ask for help at school;
- Increase students' feelings of being accepted, respected, included and supported by others in the school social environment and
- Improve students interpersonal empathy and use of pro-social (or helping) behaviours to include peers in the classroom and playground.

We hope the results of this research will help us to refine the intervention prior to testing it with more schools.

Are there any risks, side-effects, discomforts or inconveniences from being involved in the research project?

There are no foreseeable risks from this research project. We have been careful to make sure the questionnaires; observations and surveys are as minimally intrusive as possible. It is not the researchers intention to single out the student with ASD in any way. Observations will be taken of the whole-class as well as the student with ASD.

Who will have access to my information?

Any information we collect will be treated as confidential and used only in this project unless otherwise specified. Only the research team will have access to the information. The information collected in this research will be re-identifiable which means we will remove identifying information on any data and replace it with a code. The code will be stored separately from the participant data. Hardcopies of the information we collect in this study will be kept under secure conditions in the School of Occupational Therapy and Social Work at Curtin University. Electronic data will be password-protected and hard copy data (including audio tapes) will be in locked storage. It will be kept for a period of 25 years after the research has ended and then it will be destroyed. You have the right to access, and request correction of, your child's information in accordance with relevant privacy laws. The results of this research may be presented at conferences or published in professional journals. Your child will not be identified in any results that are published or presented.

Will you tell me the results of the research?

We will send the classroom teacher a summary of the findings from the pilot and detail how these will contribute towards refining the intervention. The teacher should receive these results within 3 months of participating in the research. You can request to view this information if you are interested. We will also make the results available through publication in scientific peer reviewed journals.

Do I have to take part in the research project?

Taking part in a research project is voluntary. It is your choice whether your child participates or not. You do not have to agree if you do not want to. If you decide to take part and then change your mind, that is okay, you can withdraw from the project. You do not have to give us a reason; just tell us that you want to stop. If you chose to leave the study we will use any information collected unless you tell us not to.

What happens next and who can I contact about the research?

If you decide to take part in this research we will ask you to sign the consent form. By signing it is telling us that you understand what you have read and what has been discussed. Signing the consent indicates that you consent for your child to take part in the research project. Please take your time and ask any questions you have before you decide what to do. You will be given a copy of this information and the consent form to keep. If you have any questions or would like to discuss the research further you can contact Amy Hodges on amy.hodges@curtin.edu.au or 0419383169.

Curtin University Human Research Ethics Committee (HREC) has approved this study (HREC2016-0150). Should you wish to discuss the study with someone not directly involved, in particular, any matters concerning the conduct of the study or your rights as a participant, or you wish to make a confidential complaint, you may contact the Ethics Officer on (08) 9266 9223 or the Manager, Research Integrity on (08) 9266 7093 or email hrec@curtin.edu.au.

PARENT / CAREGIVER

PILOT CONSENT FORM

HREC Project Number:	<i>HREC2016-0150</i>
Project Title:	<i>The development and evaluation of a school-based intervention for improving participation in school occupations and sense of school connectedness for primary school students with Autism Spectrum Disorder.</i>
Principal Investigator:	<i>Associate Professor Reinie Cordier</i>
Student Investigator	<i>Amy Hodges</i>
Version Number:	<i>Version 3</i>
Version Date:	<i>10.2.2020</i>

- I have read the information statement version listed above and I understand its contents.
- I believe I understand the purpose, extent and possible risks of my child's involvement in this project.
- I voluntarily consent for my child to take part in this research project.
- I have had an opportunity to ask questions and I am satisfied with the answers I have received.
- I understand that this project has been approved by Curtin University Human Research Ethics Committee and will be carried out in line with the National Statement on Ethical Conduct in Human Research (2007).
- I understand I will receive a copy of this Information Statement and Consent Form.
- I consent to my child being video-recorded.

Participant Name	
Caregiver Name	
Caregiver Signature	
Date	

OPTIONAL CONSENT

<input type="checkbox"/> I do	<input type="checkbox"/> I do not	consent to be contacted about future research projects that are related to this project
<input type="checkbox"/> I do	<input type="checkbox"/> I do not	consent to the storage and use of my information in future ethically-approved research projects related to this (project/disease)

Declaration by researcher: I have supplied an Information Letter and Consent Form to the participant who has signed above, and believe that they understand the purpose, extent and possible risks of their involvement in this project.

Researcher Name	Amy Hodges
Researcher Signature	
Date	

CHILD ASSENT

We are doing a research study to see if a program at school helps students to be more involved and feel a part of the school community. Your teacher will be running different activities during the week that are related to this program. We will ask you to complete a short survey and provide feedback at the end of the program about what you thought was good and what you thought was bad. There will be someone that comes into the classroom to take some notes on what the class is doing from time to time. You do not have to be in the study if you do not want to be. If you decide to stop after we begin, that is OK too. Your parents know about the study too.

If you decide you want to be in the study please sign your name.

I, _____, want to be in this research study.

(sign your name here)

Date

Declaration by researcher: I have supplied an Information Letter and Consent Form to the participant who has signed above, and believe that they understand the purpose, extent and possible risks of their involvement in this project.

Researcher Name	Amy Hodges
Researcher Signature	
Date	

Appendix G3: Teacher Information Sheet and Consent Form

TEACHER

PILOT INFORMATION STATEMENT

HREC Project Number:	<i>HREC2016-0150</i>
Project Title:	The development and evaluation of a school-based intervention for improving participation in school occupations and sense of school connectedness for primary school students with Autism Spectrum Disorder.
Principal Investigator:	<i>Associate Professor Reinie Cordier</i>
Student Investigator	<i>Amy Hodges</i>
Version Number:	<i>Version 4</i>
Version Date:	21.05.2020

What is the Project About?

There are increasing numbers of students with Autism Spectrum Disorder (ASD) enrolling in mainstream schools. Sometimes, students with ASD experience challenges in a mainstream school environment. We wish to investigate how students feel they belong: a term referred to as 'school connectedness'. Lack of school connectedness has been found to have an impact on students' mental health and wellbeing. Many programs aim to support students with ASD to develop their social skills but there is a gap in interventions that support students with the range of challenges they may experience across the school day. This project aims to develop and evaluate an intervention to improve the participation of students with ASD, so they feel connected and included at school. The project involves three Phases. Phase One involved developing the intervention by reviewing the literature and talking with parents, teachers and researchers about what is important to include in the intervention and how it should be implemented. Phase Two involved gaining feedback from parents, teachers and students about different parts of the intervention using online surveys. Phase Three will involve piloting the intervention in multiple classrooms to see whether it is effective and to see whether it is easy to use in a busy classroom environment. We are up to Phase Three of the research.

Who is doing the Research?

The project is being conducted by Amy Hodges, under the supervision of A/Prof Reinie Cordier, A/Prof Annette Joosten and A/Prof Helen Bourke-Taylor. The results of this research project will be used by Amy Hodges to obtain a Doctor of Philosophy (Occupational Therapy) at Curtin University.

Why am I being asked to take part and what will I have to do?

We are looking for a mainstream Year 3 or 4 classroom that has at least one student with ASD in the Perth Metropolitan Area to take part in piloting the developed intervention. Students with ASD need to be able to read at a Year 1 level and be able to complete a survey set at a Year 1 level. You have been asked to take part as your class meets these criteria. Participation will involve you incorporating the developed intervention, called *In My Shoes*, into your classroom routine over the course of a term. *In My Shoes* is a whole-class social inclusion program that teaches social problem solving and perspective taking skills; focusing on supporting peers to include students with ASD (and *all* students) in the classroom and playground. The intervention is manualised and includes weekly modules addressing core concepts and skills with ‘ready to go’ resources such as lesson plans and activity sheets. It is directly linked to state and national curriculum, so will not be something you will need to do on top of existing curriculum. We will provide you with training about how to use *In My Shoes* and its resources.

We will ask you to complete two short questionnaires – one that will ask questions about your perceptions of the classroom environment and another that asks questions about your knowledge, attitudes and skills towards supporting students with ASD. This will help us to understand the characteristics of the classroom and also your previous experience in working with students with ASD. We will also ask you to complete scale that will help us gather information about the student/s with ASD social skills and behaviour in the school environment. These questionnaires should take no longer than 40 minutes to complete in total. We will also ask you to get your students to complete a questionnaire during class time to get their perceptions of the classroom environment. This should take no longer than 15 minutes to complete.

In the first and final week of the intervention we will collect information about the quality of the students with ASD experience using an electronic survey. This survey will be loaded onto a smart device so that it can be easily transported around the school grounds. The student with ASD will be prompted by a ‘beep’ to complete the survey approximately 5 times during school hours at random generated by the device. The survey will include ask questions like “where were you when you heard the beep?”, “what was the main thing that you were doing?” and “who were you talking to?” and will take no longer than 2 minutes to complete. It will also ask the student rate the quality of their experience relating to their level of enjoyment as well as their emotions. The survey will be trialled with two typically developing students to make sure the questions are clear and developmentally appropriate. Survey questions will be set at a Year 1 level so the student with ASD should be able to complete it independently. Depending on the student and the situation, you, education assistant or a peer may be required at times to prompt the student with ASD to complete the survey. We will provide you and the student with ASD training in how to use the smart device and complete the survey. The survey will help us to collect information about the quality of the student with ASD experience at school so we can compare this to their participation and see if it changes over the course of the intervention.

In the first and final week of the intervention, we will take observations of the whole-class and student/s with ASD. The person conducting the observations will video record students in the classroom for up to 30 minutes

on two separate days. They will then use this video to record student/s with ASD behaviours on standardised behavioural observation scale. This will help us to collect information about the student/s with ASD level of participation in the classroom and whether this changes over the course of the intervention.

At the end of the intervention, we will ask you as well as the students to give us feedback on the intervention by answering a short survey. We will ask you and a select number of students to provide additional feedback by interview. We will ask questions such as “what was the most beneficial aspect of the program?” and “what do you think could be improved?”. This information will help us to refine the intervention prior to using it with more schools. All information will be de-identified. Information collected from questionnaires, observations, surveys and interviews will be analysed and only group information will be reported. There will be no cost to you for taking part in this research and you will not be paid for participating.

Are there any benefits’ to being in the research project?

There may be no direct benefit to you from participating in this research. Sometimes, teachers like to be involved in research that may have a positive impact on students. While the intervention has been developed based on the challenges students with ASD experience in mainstream school, it is anticipated the intervention will have a positive impact on all students in the classroom. The anticipated outcomes of the intervention are listed below:

- Increase students’ understanding and awareness of differences in the way people think, feel and behave and Autism Spectrum Disorders;
- Increase students’ self-awareness of individual strengths and differences and the strengths and differences of peers;
- Improve students’ confidence in abilities to recognise when someone needs help, how to help others and ask for help at school;
- Increase students’ feelings of being accepted, respected, included and supported by others in the school social environment and
- Improve students interpersonal empathy and use of pro-social (or helping) behaviours to include peers in the classroom and playground.

We hope the results of this research will help us to refine the intervention prior to piloting it with more schools.

Are there any risks, side-effects, discomforts or inconveniences from being involved in the research project?

There are no foreseeable risks from this research project. We have been careful to make sure the questionnaires; observations and surveys are as minimally intrusive as possible. It is not the researchers intention to single out student/s with ASD in any way. Observations will be taken of the whole-class as well as student/s with ASD. If you are concerned about the student with ASD being singled out when completing the electronic survey, we can also ask a few peers to also complete the survey to minimise any additional attention

placed on the student with ASD. If your involvement in the research causes you any concerns or distress we can refer you to a counsellor.

Who will have access to my information?

Any information we collect will be treated as confidential and used only in this project unless otherwise specified. Only the research team will have access to the information. The information collected in this research will be re-identifiable which means we will remove identifying information on any data and replace it with a code. The code will be stored separately from the participant data. Hardcopies of the information we collect in this study will be kept under secure conditions in the School of Occupational Therapy and Social Work at Curtin University. Electronic data will be password-protected and hard copy data (including audio tapes) will be in locked storage. It will be kept for a period of 25 years after the research has ended and then it will be destroyed. You have the right to access, and request correction of, your information in accordance with relevant privacy laws. The results of this research may be presented at conferences or published in professional journals. You will not be identified in any results that are published or presented.

Will you tell me the results of the research?

We will send you a summary of the findings from the trial and detail how these findings will contribute towards the development of the intervention. You should receive these results within 3 months of participating in the research. We will also make the results available through publication in scientific peer reviewed journals.

Do I have to take part in the research project?

Taking part in a research project is voluntary. It is your choice to take part or not. You do not have to agree if you do not want to. If you decide to take part and then change your mind, that is okay, you can withdraw from the project. You do not have to give us a reason; just tell us that you want to stop. If you choose to leave the study we will use any information collected unless you tell us not to.

What happens next and who can I contact about the research?

If you decide to take part in this research we will ask you to sign the consent form. By signing it is telling us that you understand what you have read and what has been discussed. Please take your time and ask any questions you have before you decide what to do. You will be given a copy of this information and the consent form to keep. If you have any questions or would like to discuss the research further you can contact Amy Hodges on amy.hodges@curtin.edu.au or 0419383169.

Curtin University Human Research Ethics Committee (HREC) has approved this study (HREC2016-0150). Should you wish to discuss the study with someone not directly involved, in particular, any matters concerning the conduct of the study or your rights as a participant, or you wish to make a confidential complaint, you may contact the Ethics Officer on (08) 9266 9223 or the Manager, Research Integrity on (08) 9266 7093 or email hrec@curtin.edu.au.

TEACHER
PILOT CONSENT FORM

HREC Project Number:	<i>HREC2016-0150</i>
Project Title:	<i>The development and evaluation of a school-based intervention for improving participation in school occupations and sense of school connectedness for primary school students with Autism Spectrum Disorder.</i>
Principal Investigator:	<i>Associate Professor Reinie Cordier</i>
Student Investigator	<i>Amy Hodges</i>
Version Number:	<i>Version 4</i>
Version Date:	<i>21.5.2020</i>

- I have read the information statement version listed above and I understand its contents.
- I believe I understand the purpose, extent and possible risks of my involvement in this project.
- I voluntarily consent to taking part in this research project.
- I have had an opportunity to ask questions and I am satisfied with the answers I have received.
- I understand that this project has been approved by Curtin University Human Research Ethics Committee and will be carried out in line with the National Statement on Ethical Conduct in Human Research (2007).
- I understand I will receive a copy of this Information Statement and Consent Form.
-

Participant Name	
Participant Signature	
Date	

OPTIONAL CONSENT

<input type="checkbox"/> I do	<input type="checkbox"/> I do not	consent to be contacted about future research projects that are related to this project
<input type="checkbox"/> I do	<input type="checkbox"/> I do not	consent to the storage and use of my information in future ethically-approved research projects related to this (project/disease)

Declaration by researcher: I have supplied an Information Letter and Consent Form to the participant who has signed above, and believe that they understand the purpose, extent and possible risks of their involvement in this project.

Researcher Name	Amy Hodges
Researcher Signature	
Date	

Appendix G4: Parent of Student on the Autism Spectrum Demographic Questionnaire



PARENT BASELINE QUESTIONNAIRES

Date completing form _____

Name _____

Email _____

Phone _____

Preferred method of contact ☐ Email ☐ Phone

Preferred time of day to contact ☐ AM ☐ PM

Please specify specific days or times if necessary:

Please answer the following questions

1. Are you of Aboriginal or Torres Strait Islander origin?	<input type="checkbox"/> Yes, Aboriginal Australian <input type="checkbox"/> Yes, Torres Strait Islander <input type="checkbox"/> No •
2. How many children are in your family?	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 or more
3. Do you have any other children with a developmental delay or diagnosed disability?	<input type="checkbox"/> Yes <input type="checkbox"/> No •
a. If YES, please specify the age of the child and their developmental delay or diagnosed disability.	

The following questions relate to your child participating in *In My Shoes*

1. Does your child have any other medical conditions or diagnoses?	<input type="checkbox"/> Yes <input type="checkbox"/> No
•	
a. If you answered YES, please specify	<hr/> <hr/>
•	
2. How long have they been attending their current school?	<input type="checkbox"/> 0 – 1 years <input type="checkbox"/> 2 – 3 years <input type="checkbox"/> 4 – 5 years <input type="checkbox"/> 6 – 7 years
3. How many schools has your child attended in the last 5 years?	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 or more
4. If your child has changed school, please briefly describe the reasons for the change/s	<hr/> <hr/>
5. Does your child have an Individual Education Plan?	<input type="checkbox"/> Yes <input type="checkbox"/> No
•	
6. Does your child have access to an Education Assistant at school?	<input type="checkbox"/> Yes <input type="checkbox"/> No
•	
a. If YES, please estimate how many hours a week (full time equivalent)?	<input type="checkbox"/> 1 – 4 hours <input type="checkbox"/> 5 – 9 hours <input type="checkbox"/> 10 – 14 hours <input type="checkbox"/> 15 – 19 hours <input type="checkbox"/> 20 – 24 hours <input type="checkbox"/> 25 – 29 hours <input type="checkbox"/> 30 – 34 hours
b. If YES, please describe how is this time delivered?	<hr/> <hr/> <hr/>
7. Are you currently receiving services or supports outside of school?	<input type="checkbox"/> Yes <input type="checkbox"/> No
a. If YES, please briefly describe services that you are currently receiving	<hr/> <hr/>
•	

Thank-you for taking the time to complete these questionnaires. If you have any questions, please do not hesitate to contact me on 0419383169.

**Appendix G5: Parent of Typically Developing Students Demographic
Questionnaire**



PARENT DEMOGRAPHIC QUESTIONNAIRE

Date completing form: _____

Parent name: _____

Student name: _____

Please answer the following questions

- | | |
|---|--|
| 1. Are you of Aboriginal or Torres Strait Islander origin? | <input type="checkbox"/> Yes, Aboriginal Australian
<input type="checkbox"/> Yes, Torres Strait Islander
<input type="checkbox"/> No
• |
| <hr/> | |
| 2. Do you speak a language other than English at home? | <input type="checkbox"/> Yes
<input type="checkbox"/> No |
| <hr/> | |
| a. If you answered YES, please specify | _____
_____ |
| <hr/> | |
| 3. How many children are in your family? | <input type="checkbox"/> 1
<input type="checkbox"/> 2
<input type="checkbox"/> 3
<input type="checkbox"/> 4
<input type="checkbox"/> 5 or more |
| <hr/> | |
| 4. Do you have any children with a developmental delay or diagnosed disability? | <input type="checkbox"/> Yes
<input type="checkbox"/> No
• |
| <hr/> | |
| a. If YES, please specify the age of the child and their developmental delay or diagnosed disability. | _____

• |
| <hr/> | |
| 5. How many years has your child been attending his/her current school? | <input type="checkbox"/> 0 – 1 years
<input type="checkbox"/> 2 – 3 years
<input type="checkbox"/> 4 – 5 years
<input type="checkbox"/> 6 – 7 years |
-

Thank-you for taking the time to complete these questionnaires. If you have any questions, please do not hesitate to contact me on 0419383169.

Appendix G6: Teacher Demographic Questionnaire and Baseline Questionnaires



TEACHER BASELINE QUESTIONNAIRES

Date completing form _____

Name _____

Email _____

Phone _____

Preferred method of contact ☐ Email ☐ Phone

Preferred time of day to contact ☐ AM ☐ PM

Please specify specific days or times if necessary:

PART ONE: DEMOGRAPHICS

1. Are you of Aboriginal or Torres Strait Islander origin? ☐ Yes, Aboriginal Australian
☐ Yes, Torres Strait Islander
☐ No

2. What is the highest degree you have earned?
(please tick only one) ☐ Bachelor (or equivalent) degree
☐ Master's degree (research)
☐ Master's degree (coursework)
☐ PhD
☐ Other, please specify: _____

3. How many years (total, full time equivalent) of experience do you have working as a teacher? ☐ 1 year
☐ 2 years
☐ 3 – 5 years
☐ 6 – 9 years
☐ More than 10 years

4. Have you had experience teaching other year levels? ☐ Yes
☐ No

- a) If you answered YES, please tick year levels that apply ☐ Year 1
☐ Year 2
☐ Year 3

	<input type="checkbox"/> Year 4 <input type="checkbox"/> Year 5 <input type="checkbox"/> Year 6 <input type="checkbox"/> Year 7
5. How many years have you worked at your current school?	<input type="checkbox"/> 1 year <input type="checkbox"/> 2 years <input type="checkbox"/> 3 – 5 years <input type="checkbox"/> 6 – 9 years <input type="checkbox"/> More than 10 years
6. Have you had experience working in other schooling sectors?	<input type="checkbox"/> Yes <input type="checkbox"/> No
7. How many students with Autism Spectrum Disorder have you worked with previously?	<input type="checkbox"/> 1 student <input type="checkbox"/> 2 students <input type="checkbox"/> 3 – 5 students <input type="checkbox"/> 6 – 9 students <input type="checkbox"/> More than 10 students
8. How many students are in your class this year?	<input type="checkbox"/> 15 – 19 students <input type="checkbox"/> 20 – 24 students <input type="checkbox"/> 25 – 29 students <input type="checkbox"/> 30 – 34 students <input type="checkbox"/> 35 – 39 students
9. How many students in your class this year have a formal diagnosis of Autism Spectrum Disorder?	<input type="checkbox"/> 1 student <input type="checkbox"/> 2 students <input type="checkbox"/> 3 – 5 students <input type="checkbox"/> 6 – 9 students <input type="checkbox"/> More than 10 students
10. How many students in your classroom this year are on an Individual Education Plan (with or without autism)?	<input type="checkbox"/> 1 student <input type="checkbox"/> 2 students <input type="checkbox"/> 3 – 5 students <input type="checkbox"/> 6 – 9 students <input type="checkbox"/> More than 10 students
11. Do you have an Education Assistant working in your classroom?	<input type="checkbox"/> Yes <input type="checkbox"/> No
a) <i>If YES, please estimate how many hours (full time equivalent) a week you have access to the Education Assistant?</i>	<input type="checkbox"/> 1 – 4 hours <input type="checkbox"/> 5 – 9 hours <input type="checkbox"/> 10 – 14 hours <input type="checkbox"/> 15 – 19 hours <input type="checkbox"/> 20 – 24 hours <input type="checkbox"/> 25 – 29 hours <input type="checkbox"/> 30 – 34 hours
b) <i>If YES, please briefly describe how is this time delivered?</i>	

<input type="radio"/> Please estimate how many hours of general in-service professional learning you have had in the past year?	<input type="checkbox"/> Less than 20 hours <input type="checkbox"/> 20 – 24 hours <input type="checkbox"/> 25 – 29 hours <input type="checkbox"/> 30 – 34 hours <input type="checkbox"/> 35 – 39 hours <input type="checkbox"/> 40 – 44 hours <input type="checkbox"/> 45 – 49 hours <input type="checkbox"/> More than 50 hours
<input type="radio"/> Please estimate how many hours of ASD specific in-service professional learning you have had in total?	<input type="checkbox"/> 0 – 1 hours <input type="checkbox"/> 2 – 3 hours <input type="checkbox"/> 4 – 5 hours <input type="checkbox"/> 6 – 7 hours <input type="checkbox"/> 8 – 9 hours <input type="checkbox"/> >10 hours

PART TWO: TEACHER SELF EFFICACY

Banduras Teacher Self-Efficacy Scale

This questionnaire is designed to help us gain a better understanding of the kinds of things that create difficulties for teachers in their school activities. Please indicate your opinions about each of the statements below by circling the appropriate number. Your answers will be kept strictly confidential and will not be identified by name.

Efficacy to influence decision making									
How much can you influence the decisions that are made in the school?	1 <i>Nothing</i>	2	3 <i>Very Little</i>	4	5 <i>Some Influence</i>	6	7 <i>Quite a Bit</i>	8	9 <i>A Great Deal</i>
How much can you express your views freely on important school matters?	1 <i>Nothing</i>	2	3 <i>Very Little</i>	4	5 <i>Some Influence</i>	6	7 <i>Quite a Bit</i>	8	9 <i>A Great Deal</i>
Efficacy to influence school resources									
How much can you do to get the instructional materials and equipment you need?	1 <i>Nothing</i>	2	3 <i>Very Little</i>	4	5 <i>Some Influence</i>	6	7 <i>Quite a Bit</i>	8	9 <i>A Great Deal</i>
Instructional self-efficacy									
How much can you do to influence the class sizes in your school?	1 <i>Nothing</i>	2	3 <i>Very Little</i>	4	5 <i>Some Influence</i>	6	7 <i>Quite a Bit</i>	8	9 <i>A Great Deal</i>
How much can you do to get through to the most difficult students?	1 <i>Nothing</i>	2	3 <i>Very Little</i>	4	5 <i>Some Influence</i>	6	7 <i>Quite a Bit</i>	8	9 <i>A Great Deal</i>
How much can you do to promote learning when there is lack of support from the home?	1 <i>Nothing</i>	2	3 <i>Very Little</i>	4	5 <i>Some Influence</i>	6	7 <i>Quite a Bit</i>	8	9 <i>A Great Deal</i>
How much can you do to keep students on task on difficult assignments?	1 <i>Nothing</i>	2	3 <i>Very Little</i>	4	5 <i>Some Influence</i>	6	7 <i>Quite a Bit</i>	8	9 <i>A Great Deal</i>
How much can you do to increase students' memory of what they have been taught in previous lessons?	1 <i>Nothing</i>	2	3 <i>Very Little</i>	4	5 <i>Some Influence</i>	6	7 <i>Quite a Bit</i>	8	9 <i>A Great Deal</i>

How much can you do to motivate students who show low interest in schoolwork?	1 <i>Nothing</i>	2	3 <i>Very Little</i>	4	5 <i>Some Influence</i>	6	7 <i>Quite a Bit</i>	8	9 <i>A Great Deal</i>
How much can you do to get students to work together?	1 <i>Nothing</i>	2	3 <i>Very Little</i>	4	5 <i>Some Influence</i>	6	7 <i>Quite a Bit</i>	8	9 <i>A Great Deal</i>
How much can you do to overcome the influence of adverse community conditions on students' learning?	1 <i>Nothing</i>	2	3 <i>Very Little</i>	4	5 <i>Some Influence</i>	6	7 <i>Quite a Bit</i>	8	9 <i>A Great Deal</i>
How much can you do to get children to do their homework?	1 <i>Nothing</i>	2	3 <i>Very Little</i>	4	5 <i>Some Influence</i>	6	7 <i>Quite a Bit</i>	8	9 <i>A Great Deal</i>
Disciplinary self-efficacy									
How much can you do to get children to follow classroom rules?	1 <i>Nothing</i>	2	3 <i>Very Little</i>	4	5 <i>Some Influence</i>	6	7 <i>Quite a Bit</i>	8	9 <i>A Great Deal</i>
How much can you do to control disruptive behaviour in the classroom?	1 <i>Nothing</i>	2	3 <i>Very Little</i>	4	5 <i>Some Influence</i>	6	7 <i>Quite a Bit</i>	8	9 <i>A Great Deal</i>
How much can you do to prevent problem behaviour on the school grounds?	1 <i>Nothing</i>	2	3 <i>Very Little</i>	4	5 <i>Some Influence</i>	6	7 <i>Quite a Bit</i>	8	9 <i>A Great Deal</i>
Efficacy to enlist Parental Involvement									
How much can you do to get parents to become involved in school activities?	1 <i>Nothing</i>	2	3 <i>Very Little</i>	4	5 <i>Some Influence</i>	6	7 <i>Quite a Bit</i>	8	9 <i>A Great Deal</i>
How much can you assist parents in helping their children do well in school?	1 <i>Nothing</i>	2	3 <i>Very Little</i>	4	5 <i>Some Influence</i>	6	7 <i>Quite a Bit</i>	8	9 <i>A Great Deal</i>
How much can you do to make parents feel comfortable coming to school?	1 <i>Nothing</i>	2	3 <i>Very Little</i>	4	5 <i>Some Influence</i>	6	7 <i>Quite a Bit</i>	8	9 <i>A Great Deal</i>
Efficacy to Enlist Community Involvement									
How much can you do to get community groups involved in working with the schools?	1 <i>Nothing</i>	2	3 <i>Very Little</i>	4	5 <i>Some Influence</i>	6	7 <i>Quite a Bit</i>	8	9 <i>A Great Deal</i>

How much can you do to get churches involved in working with the school?	1 <i>Nothing</i>	2	3 <i>Very Little</i>	4	5 <i>Some Influence</i>	6	7 <i>Quite a Bit</i>	8	9 <i>A Great Deal</i>
How much can you do to get businesses involved in working with the school?	1 <i>Nothing</i>	2	3 <i>Very Little</i>	4	5 <i>Some Influence</i>	6	7 <i>Quite a Bit</i>	8	9 <i>A Great Deal</i>
How much can you do to get local colleges and universities involved in working with the school?	1 <i>Nothing</i>	2	3 <i>Very Little</i>	4	5 <i>Some Influence</i>	6	7 <i>Quite a Bit</i>	8	9 <i>A Great Deal</i>
Efficacy to Create a Positive School Climate									
How much can you do to make the school a safe place?	1 <i>Nothing</i>	2	3 <i>Very Little</i>	4	5 <i>Some Influence</i>	6	7 <i>Quite a Bit</i>	8	9 <i>A Great Deal</i>
How much can you do to make students enjoy coming to school?	1 <i>Nothing</i>	2	3 <i>Very Little</i>	4	5 <i>Some Influence</i>	6	7 <i>Quite a Bit</i>	8	9 <i>A Great Deal</i>
How much can you do to get students to trust teachers?	1 <i>Nothing</i>	2	3 <i>Very Little</i>	4	5 <i>Some Influence</i>	6	7 <i>Quite a Bit</i>	8	9 <i>A Great Deal</i>
How much can you help other teachers with their teaching skills?	1 <i>Nothing</i>	2	3 <i>Very Little</i>	4	5 <i>Some Influence</i>	6	7 <i>Quite a Bit</i>	8	9 <i>A Great Deal</i>
How much can you do to enhance collaboration between teachers and the administration to make the school run effectively?	1 <i>Nothing</i>	2	3 <i>Very Little</i>	4	5 <i>Some Influence</i>	6	7 <i>Quite a Bit</i>	8	9 <i>A Great Deal</i>
How much can you do to reduce school dropout?	1 <i>Nothing</i>	2	3 <i>Very Little</i>	4	5 <i>Some Influence</i>	6	7 <i>Quite a Bit</i>	8	9 <i>A Great Deal</i>
How much can you do to reduce school absenteeism?	1 <i>Nothing</i>	2	3 <i>Very Little</i>	4	5 <i>Some Influence</i>	6	7 <i>Quite a Bit</i>	8	9 <i>A Great Deal</i>
How much can you do to get students to believe they can do well in schoolwork?	1 <i>Nothing</i>	2	3 <i>Very Little</i>	4	5 <i>Some Influence</i>	6	7 <i>Quite a Bit</i>	8	9 <i>A Great Deal</i>

*Thank-you for taking the time to complete these questionnaires.
If you have any questions, please do not hesitate to contact Amy Hodges on 0419383169.*

Appendix G7: In My Shoes Self-Developed Outcome Measures

Student name: _____

Date: _____

IN MY SHOES

Circle what you would do if you were Johnny's classmate.

1. *Johnny's favourite subject is science and he is really good at it. You hate science. Do you:*

- A. Make fun of Johnny for liking science.
- B. Sit next to Johnny in science and ask him for help.
- C. Ask Johnny what he likes about science.
- D. Do nothing – everyone is different and likes different things.

•

2. *Everyone is playing their recorder loudly in music class. Johnny looks upset, sitting in the corner with his hands over his ears. Do you:*

- A. Not do anything.
- B. Tell the teacher Johnny needs help.
- C. Ask Johnny if he needs help.

3. *Johnny love's Minecraft and talks about it all the time. Sometimes that is all he talks about and he forgets to take turns in conversation. You see him walking over to you in the hallway. Do you:*

- A. Avoid Johnny. You don't want to talk about Minecraft all day.
- B. Show interest in Johnny's interest by asking him a question about Minecraft.
- C. Talk to Johnny. Give Johnny reminders to take turns in conversation.

•

4. *You are doing a group activity with Johnny in class. He is not listening to other people's ideas and gets annoyed when they do not do the activity his way. Do you:*

- A. Remind Johnny of the rules of group work.
 - B. Encourage Johnny to ask the teacher for a break to calm down.
 - C. Tell Johnny he cannot be a part of your group anymore.
 - D. Ask the teacher for help.
5. Johnny finds it difficult to concentrate in class. He is rocking on his chair and tapping his pencil loudly which is distracting everyone at the table. Do you:
- A. Tell Johnny to stop and do his work.
 - B. Suggest Johnny asks the teacher for a break.
 - C. Tell or show Johnny what he is meant to be doing.
 -
6. Johnny sometimes needs a helper to write down his answers on his worksheet as he finds handwriting hard. Do you:
- A. Tell everyone Johnny needs help.
 - B. Encourage Johnny.
 - C. Do nothing – everyone needs help sometimes.
 -
7. You are playing a game of four square with your friends. You see Johnny is sitting on his own in the playground. Do you:
- A. Ask Johnny to come and play.
 - B. Ignore Johnny. He's not good at four square.
 - C. Leave Johnny alone. You know that he likes playing by himself.
 -
8. Johnny does not want to join in a game of soccer at lunch. Do you:
- A. Keep asking Johnny to play until he says 'yes'.
 - B. Ignore Johnny and don't ask him to play again.
 - C. Encourage Johnny to play but respect his wishes if he says 'no'.
 -
9. You see Johnny getting teased on the playground because he flaps his hands when he is excited. Do you:

- A. Ignore it.
- B. Tell the on-duty teacher.
- C. Tell the kids to leave Johnny alone.
- D. Ask Johnny to come play with you instead.

10. Johnny is yelling, stomping his feet and throwing his school bag around on a school excursion to the zoo. Do you:

- A. Tell everyone to watch Johnny.
- B. Tell a teacher that Johnny is upset and needs help.
- C. Ask Johnny if he needs help.

Student name: _____

Date: _____

IN THE PAST WEEK AT SCHOOL

In the past week at school, how confident did you feel:

	<i>Please circle your answer</i>			
1. Asking a <u>classmate</u> for help when you needed it?	<i>Very confident</i>	<i>Confident</i>	<i>Not confident</i>	<i>Not at all confident</i>
2. Asking a <u>teacher</u> for help when you needed it?	<i>Very confident</i>	<i>Confident</i>	<i>Not confident</i>	<i>Not at all confident</i>
3. Knowing when a <u>classmate</u> needed help in the <u>classroom</u> ?	<i>Very confident</i>	<i>Confident</i>	<i>Not confident</i>	<i>Not at all confident</i>
4. Knowing when a <u>classmate</u> needed help in the <u>playground</u> ?	<i>Very confident</i>	<i>Confident</i>	<i>Not confident</i>	<i>Not at all confident</i>
5. Offering help to a <u>classmate</u> in the <u>classroom</u> ?	<i>Very confident</i>	<i>Confident</i>	<i>Not confident</i>	<i>Not at all confident</i>
6. Offering help to a <u>classmate</u> in the <u>playground</u> ?	<i>Very confident</i>	<i>Confident</i>	<i>Not confident</i>	<i>Not at all confident</i>
7. Giving a compliment to a classmate (e.g., you are good at maths)?	<i>Very confident</i>	<i>Confident</i>	<i>Not confident</i>	<i>Not at all confident</i>
8. Encouraging a classmate (e.g., you can do it)?	<i>Very confident</i>	<i>Confident</i>	<i>Not confident</i>	<i>Not at all confident</i>
9. Inviting a classmate to join in a game or activity?	<i>Very confident</i>	<i>Confident</i>	<i>Not confident</i>	<i>Not at all confident</i>
10. Starting a conversation with a classmate?	<i>Very confident</i>	<i>Confident</i>	<i>Not confident</i>	<i>Not at all confident</i>
11. Joining in a conversation with classmates?	<i>Very confident</i>	<i>Confident</i>	<i>Not confident</i>	<i>Not at all confident</i>
12. Sharing something with a classmate?	<i>Very confident</i>	<i>Confident</i>	<i>Not confident</i>	<i>Not at all confident</i>

Student name: _____

Date: _____

INVOLVEMENT

	<i>Please circle your answer</i>		
1. Most mornings, I look forward to going to school	<i>No not true</i>	<i>Not sure</i>	<i>Yes true</i>
2. I am happy to be at this school	<i>No not true</i>	<i>Not sure</i>	<i>Yes true</i>
3. I am interested in the things I am doing at school	<i>No not true</i>	<i>Not sure</i>	<i>Yes true</i>
4. Most teachers at my school like me	<i>No not true</i>	<i>Not sure</i>	<i>Yes true</i>
5. I work hard at school	<i>No not true</i>	<i>Not sure</i>	<i>Yes true</i>
6. I am an active participant in classroom activities	<i>No not true</i>	<i>Not sure</i>	<i>Yes true</i>
7. I am an active participant in school activities such as sports day and excursions	<i>No not true</i>	<i>Not sure</i>	<i>Yes true</i>
8. I take an active role in extra-curricular activities in my school	<i>No not true</i>	<i>Not sure</i>	<i>Yes true</i>

Appendix G8: Fidelity Protocol

FIDELITY PROTOCOL

Table 1. Monitoring treatment fidelity within In My Shoes study (according to the Behaviour Change Consortium Treatment Fidelity Recommendations)

Theoretical element	Operational element in the In My Shoes study
Study design (<i>i.e., ensure that the intervention is the same within conditions, equivalent across conditions and that there is a plan for implementation setbacks</i>)	<ul style="list-style-type: none"> Intervention is manualised with detailed lesson plans and resources. Recommended that more than one staff member at each school complete professional learning and familiarise themselves with the In My Shoes program in case of teacher absence. Recommended dosage (<i>i.e., at least 45 minutes per week over 10 weeks</i>). Researcher plans to include fidelity data in analysis. Researcher plans to observe delivery of program across schools through observation or via video-taped observations.
Training providers (<i>i.e., ensuring provider skill acquisition</i>)	<ul style="list-style-type: none"> Standardised online professional learning video presentations Pre and post professional learning questionnaires to evaluate teacher confidence in delivering In My Shoes program. Face to face meeting with implementing teacher and supporting administrative staff to provide opportunity to clarify content of professional learning, answer questions and discuss application of intervention to their classroom.
Delivery of treatment (<i>i.e., monitoring implementation of intervention</i>)	<ul style="list-style-type: none"> Researcher plans to observe delivery of program across schools through observation or via video-taped observations Weekly online teacher report fidelity checklist via Qualtrics Weekly/ fortnightly phone or email check-ins and reminders for teachers to answer questions or provide support
Receipt of treatment (<i>i.e., evaluate participant understanding of content</i>)	<ul style="list-style-type: none"> In My Shoes situation-based questionnaire to evaluate changes in understanding of content of program Qualitative evaluation of participant experiences via semi-structured interviews.
Enactment of treatment skills (<i>i.e., evaluating changes in participants</i>)	<ul style="list-style-type: none"> Battery of pre-post outcome measures

	<ul style="list-style-type: none"> • Qualitative evaluation of participant experiences via semi-structured interviews.
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PRE-PROFESSIONAL LEARNING QUESTIONNAIRE

- Have you read and familiarised yourself with the In My Shoes manual and resources?
- Have you read the supplementary pre-reading materials?
- Please indicate how confident you are in your ability to:
 - Facilitating students to apply the core concept of In My Shoes
 - Facilitating the video feedback activity in Module 5
 - Facilitating the video modelling activity in Module 7
 - Facilitating active parent involvement in In My Shoes
 - Facilitating whole-school involvement in In My Shoes with support from school administrative staff
 - Selecting peer buddies to participate in peer training
 - Facilitating peer training with selected peers in the first week of the program
 - Generally, implementing In My Shoes in your classroom
- What do you hope to learn from this professional learning?
- Please write down any specific questions you would like answered by primary author of In My Shoes

POST-PROFESSIONAL LEARNING QUESTIONNAIRE

- Please complete this survey to evaluate the In My Shoes professional learning you have just completed.
- Did you watch all of the professional learning video presentations?
 - If not, why not?
- Please indicate how confident you are in your ability to:
- Facilitating students to apply the core concept of In My Shoes
 - Facilitating the video feedback activity in Module 5
 - Facilitating the video modelling activity in Module 7
 - Facilitating active parent involvement in In My Shoes
 - Facilitating whole-school involvement in In My Shoes with support from school administrative staff
 - Selecting peer buddies to participate in peer training
 - Facilitating peer training with selected peers in the first week of the program
 - Generally, implementing In My Shoes in your classroom
- What did you like about the professional learning?
- What would you recommend changing about the professional learning?
- Please write down any outstanding questions or concerns you would like to discuss with Amy Hodges about *In My Shoes*

WEEKLY ONLINE TEACHER REPORT FIDELITY CHECKLIST VIA QUALTRICS

Name	Insert text
School	Insert text
Week of term	Insert text
Module delivered	Insert text
Date	Insert text
I have sent parents the weekly information handout for this lesson	Yes/No
I was prepared for the lesson (e.g., I reviewed lesson plan in advance, I printed worksheets etc.)	Yes/No
I used the power-point resource provided alongside the lesson as an additional visual support	Yes/No
I used materials suggested in the lesson plan (e.g., worksheets, videos, conversation checklist)	Yes/No
I conducted activities as per the lesson plan, unless specifically mentioned in the manual that I was able to individualise	Yes/No
I reviewed key messages at the end of the lesson	Yes/No
How much time did you spend delivering lesson content?	Yes/No
Most students were actively engaged during the lesson	Yes/No
If you selected 'no' for any of the above, please provide your reasoning here	Insert text
What did you like about this lesson?	Insert text
What would you recommend changing based on your experience facilitating this lesson?	Insert text

INTERVENTION FIDELITY CHECKLIST

Completed by researcher after observing module being delivered in classroom or via video recording. Researcher to attempt to observe one module per school.

Teacher	
School	
Week of term	
Module delivered	
Date	

MODULE ONE – WE ARE PART OF OUR CLASS COMMUNITY

Intervention component	Achieved (Yes/No)
Adherence	
<ul style="list-style-type: none"> Used power-point resource as additional visual support 	
<ul style="list-style-type: none"> Briefly outlined learning objectives or content of the lesson 	
<ul style="list-style-type: none"> Explained In My Shoes program as suggested in manual 	
<ul style="list-style-type: none"> Introduced and explained strengths and differences of characters 	
<ul style="list-style-type: none"> Reflected that everyone has strengths and differences 	
<ul style="list-style-type: none"> Emphasised that being different is not a bad thing – we can all learn to understand and accept each other’s differences at school. 	
<ul style="list-style-type: none"> Explained class citizen profile activity (including showing an example on smart board) 	
<ul style="list-style-type: none"> Facilitated students to share one similarity and one difference in pairs and with the class 	
<ul style="list-style-type: none"> Displayed class citizen profiles in the room (or indicated that he/she would display in the room) 	
<ul style="list-style-type: none"> Facilitated discussion about what it looks like, feels like and sounds like to be included at school. 	
<ul style="list-style-type: none"> Facilitated discussion about one thing students could say or do to make someone feel included at school 	
<ul style="list-style-type: none"> Reviewed key messages at the end of the lesson and made reference to next weeks lesson 	
Duration and exposure	
<ul style="list-style-type: none"> Approximately 45 minutes spent on session content (<i>detail specific amount of time spent on lesson</i>) 	
Quality of delivery	
<ul style="list-style-type: none"> Teacher comes prepared (i.e., uses PowerPoint on smart/white board; has printed worksheets as required etc.) 	
<ul style="list-style-type: none"> Teacher is encouraging and enthusiastic 	
<ul style="list-style-type: none"> Teacher gives explicit instructions to students 	

<ul style="list-style-type: none"> Teacher provides constructive and positive feedback 	
Programme specificity	
<ul style="list-style-type: none"> Adheres to activities as designed, unless specifically mentioned in manual that able to individualise 	
Student responsiveness	
<ul style="list-style-type: none"> Most students are actively engaged or willingly compliant 	
Total score = total number of 'yes'	/ 19

MODULE TWO – LEARNING ABOUT AUTISM SPECTRUM DISORDER

Intervention component	Achieved (Yes/No)
Adherence	
<ul style="list-style-type: none"> Used power-point resource as additional visual support 	
<ul style="list-style-type: none"> Briefly outlined learning objectives or content of the lesson 	
<ul style="list-style-type: none"> Presented scenario on smart board and asked students 'what did you see when you looked at this picture'? 	
<ul style="list-style-type: none"> Facilitated discussion with students about differences in student responses and highlighted that although students have been presented with same picture, they think about it in different ways. 	
<ul style="list-style-type: none"> Facilitated students to complete pre-questionnaire about students understanding of autism. 	
<ul style="list-style-type: none"> Explained Autism Spectrum Disorder as suggested in the manual. 	
<ul style="list-style-type: none"> Explained autism video documentary prior to showing students and set up a supportive environment. 	
<ul style="list-style-type: none"> Showed the autism video documentary to the class. 	
<ul style="list-style-type: none"> Stopped and started video at key points and facilitated whole-class discussion using reflective questions. 	
<ul style="list-style-type: none"> Reiterated main points of video as suggested in the manual (i.e., not all students with ASD are the same etc) 	
<ul style="list-style-type: none"> Facilitated students to debrief after the video including sharing that Anthony (character of In My Shoes) has diagnosis of ASD 	
<ul style="list-style-type: none"> Facilitated students to complete post-questionnaire about students understanding of autism. 	
<ul style="list-style-type: none"> Facilitated students to identify one thing they could do or say to help student with ASD feel included at school-based on watching the video. 	
<ul style="list-style-type: none"> Reviewed key messages at the end of the lesson and made reference to next weeks lesson 	
Duration and exposure	
<ul style="list-style-type: none"> Approximately 45 minutes spent on session content (<i>detail specific amount of time spent on lesson</i>) 	
Quality of delivery	

• Teacher comes prepared (i.e., uses PowerPoint on smart/white board; has printed worksheets as required etc.)	
• Teacher is encouraging and enthusiastic	
• Teacher gives explicit instructions to students	
• Teacher provides constructive and positive feedback	
Programme specificity	
• Adheres to activities as designed, unless specifically mentioned in manual that able to individualise	
Student responsiveness	
• Most students are actively engaged or willingly compliant	
Total score = total number of 'yes'	/ 19

MODULE THREE – LOOK, THINK, DECIDE

Intervention component	Achieved (Yes/No)
Adherence	
• Used PowerPoint resource as additional visual support	
• Briefly outlined learning objectives or content of the lesson	
• Asked students to identify something that they find hard at school and share it with the class.	
• Facilitated discussion about what students think and how they feel when they find something hard	
• Facilitated discussion about how other people can tell that they are finding something hard	
• Showed class a selected 'Look, Think, Decide' video.	
• Paused video at key points and facilitated students to identify answers to Look, Think, Decide.	
• Explained worksheet activity including showing students scenarios on PowerPoint resource.	
• Encouraged pairs to feedback their answers to worksheets to the class.	
• Reviewed concept of Look, Think, Decide.	
• Reviewed key messages at the end of the lesson and made reference to next week's lesson	
Duration and exposure	
• Approximately 45 minutes spent on session content (<i>detail specific amount of time spent on lesson</i>)	
Quality of delivery	
• Teacher comes prepared (i.e., uses PowerPoint on smart/white board; has printed worksheets as required etc.)	
• Teacher is encouraging and enthusiastic	
• Teacher gives explicit instructions to students	
• Teacher provides constructive and positive feedback	

Programme specificity	
<ul style="list-style-type: none"> Adheres to activities as designed, unless specifically mentioned in manual that able to individualise 	
Student responsiveness	
<ul style="list-style-type: none"> Most students are actively engaged or willingly compliant 	
Total score = total number of 'yes'	/ 18

MODULE FOUR – GETTING ALONG WITH OTHERS

Intervention component	Achieved (Yes/No)
Adherence	
<ul style="list-style-type: none"> Used PowerPoint resource as additional visual support 	
<ul style="list-style-type: none"> Briefly outlined learning objectives or content of the lesson 	
<ul style="list-style-type: none"> Present scenario of Anthony and Charlotte having a conversation on the PowerPoint slide on the smart/ white board. 	
<ul style="list-style-type: none"> Facilitated discussion with students about what it looks like, feels like and sounds like when conversations go well and not so well. 	
<ul style="list-style-type: none"> Explained conversation activity using PowerPoint resource as a visual support. 	
<ul style="list-style-type: none"> Provided students with conversation checklist as a visual support. 	
<ul style="list-style-type: none"> Facilitated students to complete in conversation activity including providing feedback to students. 	
<ul style="list-style-type: none"> Encouraged select number of students to share what they have learnt about their peer from their conversation. 	
<ul style="list-style-type: none"> Reflected that despite being different we can try to get along with others by using expected behaviours in conversation to show interest in others, so everyone feels accepted, respected and included at school. 	
<ul style="list-style-type: none"> Reviewed key messages at the end of the lesson and made reference to next week's lesson 	
Duration and exposure	
<ul style="list-style-type: none"> Approximately 45 minutes spent on session content (<i>detail specific amount of time spent on lesson</i>) 	
Quality of delivery	
<ul style="list-style-type: none"> Teacher comes prepared (i.e., uses PowerPoint on smart/white board; has printed worksheets as required etc.) 	
<ul style="list-style-type: none"> Teacher is encouraging and enthusiastic 	
<ul style="list-style-type: none"> Teacher gives explicit instructions to students 	
<ul style="list-style-type: none"> Teacher provides constructive and positive feedback 	
Programme specificity	
<ul style="list-style-type: none"> Adheres to activities as designed, unless specifically mentioned in manual that able to individualise 	
Student responsiveness	

<ul style="list-style-type: none"> • Most students are actively engaged or willingly compliant 	
Total score = total number of 'yes'	/ 17

MODULE FIVE – BEING PART OF A GROUP

Intervention component	Achieved (Yes/No)
<i>Adherence</i>	
<ul style="list-style-type: none"> • Used PowerPoint resource as additional visual support 	
<ul style="list-style-type: none"> • Briefly outlined learning objectives or content of the lesson 	
<ul style="list-style-type: none"> • Explained marshmallow activity 	
<ul style="list-style-type: none"> • Selected one student from each group to come up and collect materials and explained secret role in the activity 	
<ul style="list-style-type: none"> • Provided marshmallow challenge written visual instructions to students 	
<ul style="list-style-type: none"> • Presented instructions and visual timer on smart/white board 	
<ul style="list-style-type: none"> • Explained use of video camera; set up video camera and recorded one group of students completing marshmallow challenge. 	
<ul style="list-style-type: none"> • Facilitated a select number of students to share their experience with the class 	
<ul style="list-style-type: none"> • Reflected that it is important to recognise when group work is breaking down so that we can problem solve solutions and help others 	
<ul style="list-style-type: none"> • Played video of one group completing the marshmallow challenge 	
<ul style="list-style-type: none"> • Facilitated students to apply Look, Think, Decide to video of students completing marshmallow challenge 	
<ul style="list-style-type: none"> • Facilitated students to brainstorm strategies to manage conflict or difficulties in the group work activity and good things that could have happened if they chose these actions. 	
<ul style="list-style-type: none"> • Reflected on the good things that happen when group work goes well. 	
<ul style="list-style-type: none"> • Reflected that some students find group work more difficult than others and we can all do our best to use Look, Think, Decide in group work to figure out how we can help or make it better. 	
<ul style="list-style-type: none"> • Reviewed key messages at the end of the lesson and made reference to next week's lesson 	
<i>Duration and exposure</i>	
<ul style="list-style-type: none"> • Approximately 45 minutes spent on session content (<i>detail specific amount of time spent on lesson</i>) 	
<i>Quality of delivery</i>	
<ul style="list-style-type: none"> • Teacher comes prepared (i.e., uses PowerPoint on smart/white board; has printed worksheets as required etc.) 	
<ul style="list-style-type: none"> • Teacher is encouraging and enthusiastic 	

• Teacher gives explicit instructions to students	
• Teacher provides constructive and positive feedback	
Programme specificity	
• Adheres to activities as designed, unless specifically mentioned in manual that able to individualise	
Student responsiveness	
• Most students are actively engaged or willingly compliant	
Total score = total number of 'yes'	/ 22

MODULE SIX – HELPING EACH OTHER IN THE CLASSROOM

Intervention component	Achieved (Yes/No)
Adherence	
• Used PowerPoint resource as additional visual support	
• Briefly outlined learning objectives or content of the lesson	
• Explained diffability activity using PowerPoint slide as a visual support	
• Reflected with class what they were thinking and how they were feeling when they completed diffability activity.	
• Explained comic-strip scenario activity using PowerPoint slide as a visual support	
• Facilitated students to feed back their answers to the class	
• Summarised actions identified by students across groups and reflected generally on good things that happen when we help others.	
• Reflected that everyone can have difficulty learning or staying on task in class at one time or another and that's OK.	
• Reviewed key messages at the end of the lesson and made reference to next week's lesson	
Duration and exposure	
• Approximately 45 minutes spent on session content (<i>detail specific amount of time spent on lesson</i>)	
Quality of delivery	
• Teacher comes prepared (i.e., uses PowerPoint on smart/white board; has printed worksheets as required etc.)	
• Teacher is encouraging and enthusiastic	
• Teacher gives explicit instructions to students	
• Teacher provides constructive and positive feedback	
Programme specificity	
• Adheres to activities as designed, unless specifically mentioned in manual that able to individualise	
Student responsiveness	
• Most students are actively engaged or willingly compliant	

Total score = total number of 'yes'	/ 16
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MODULE SEVEN – MAKING SENSE OF RECESS

Intervention component	Achieved (Yes/No)
<i>Adherence</i>	
• Used PowerPoint resource as additional visual support	
• Briefly outlined learning objectives or content of the lesson	
• Presented three break time scenarios on the smart board	
• Facilitated discussion about what is happening in the scenarios, what characters might be thinking and how they might be feeling using guiding questions	
• Explained choose your own ending activity using PowerPoint slide as a visual support	
• Facilitated students to engage video role play, providing support and feedback as required	
• Encouraged a selected number of groups to share their video with the class and facilitated discussion	
• Summarised actions taken in videos to make other feel welcomed, included and supported at break times	
• Reviewed key messages at the end of the lesson and made reference to next week's lesson	
<i>Duration and exposure</i>	
• Approximately 45 minutes spent on session content (<i>detail specific amount of time spent on lesson</i>)	
<i>Quality of delivery</i>	
• Teacher comes prepared (i.e., uses PowerPoint on smart/white board; has printed worksheets as required etc.)	
• Teacher is encouraging and enthusiastic	
• Teacher gives explicit instructions to students	
• Teacher provides constructive and positive feedback	
<i>Programme specificity</i>	
• Adheres to activities as designed, unless specifically mentioned in manual that able to individualise	
<i>Student responsiveness</i>	
• Most students are actively engaged or willingly compliant	
Total score = total number of 'yes'	/ 16

MODULE EIGHT – RESOLVING CONFLICT AT BREAK TIME

Intervention component	Achieved (Yes/No)
<i>Adherence</i>	

• Used PowerPoint resource as additional visual support	
• Briefly outlined learning objectives or content of the lesson	
• Facilitated discussion about when recess and lunch go well and not so well on the smart board.	
• Reflected with students on reasons why conflicts arise, and that conflict is a part of everyday life at school and it is important to learn how to resolve conflicts so everyone can have fun and play together.	
• Explained that some students find resolving conflict harder than others and need a bit more help.	
• Presented four-square scenario on the smart board	
• Facilitated discussion about whether this situation has happened to students and what they were thinking and how they were feeling when this happened using PowerPoint slide as a visual support	
• Reflected on characteristics of Anthony's character and that sometimes resolving conflict is harder for some people and that we need to be patient and respectful with others.	
• Explained wheel of choices activity with PowerPoint slide as a visual support.	
• Facilitated discussion, modelling and role play of choices that the spinner lands on	
• Facilitated students to choose the best choice for characters based on consequences.	
• Present wheel of choices spinner in the classroom and encourage students to refer to it when they have a conflict to resolve	
• Reminded students that if they feel unsure, unsafe or cannot resolve conflict they can always ask an adult for help at school	
• Reviewed key messages at the end of the lesson and made reference to next week's lesson	
<i>Duration and exposure</i>	
• Approximately 45 minutes spent on session content (<i>detail specific amount of time spent on lesson</i>)	
<i>Quality of delivery</i>	
• Teacher comes prepared (i.e., uses PowerPoint on smart/white board; has printed worksheets as required etc.)	
• Teacher is encouraging and enthusiastic	
• Teacher gives explicit instructions to students	
• Teacher provides constructive and positive feedback	
<i>Programme specificity</i>	
• Adheres to activities as designed, unless specifically mentioned in manual that able to individualise	
<i>Student responsiveness</i>	
• Most students are actively engaged or willingly compliant	

Total score = total number of 'yes'	/ 21
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MODULE NINE – MANAGING OUR EMOTIONS WHEN THINGS CHANGE

Intervention component	Achieved (Yes/No)
Adherence	
• Used PowerPoint resource as additional visual support	
• Briefly outlined learning objectives or content of the lesson	
• Presented sports carnival scenario on the smart board	
• Facilitated discussion about characters thoughts and feelings by identifying body clues on the slide	
• Reflected that all students experience school events differently and that's OK	
• Facilitated discussion about activities, events or situations that are different to normal at school and how students think and feel when these changes occur using PowerPoint slide as a visual support.	
• Explained worksheet activity using PowerPoint slide as visual support	
• Facilitated students to complete worksheet in groups by providing feedback and support where required.	
• Facilitated a select number of groups to feedback their worksheet answers to the class.	
• Reviewed key messages at the end of the lesson and made reference to next week's lesson	
• Reminded students to bring a plate and pass on written invitation to parents to attend Module 10.	
Duration and exposure	
• Approximately 45 minutes spent on session content (<i>detail specific amount of time spent on lesson</i>)	
Quality of delivery	
• Teacher comes prepared (i.e., uses PowerPoint on smart/white board; has printed worksheets as required etc.)	
• Teacher is encouraging and enthusiastic	
• Teacher gives explicit instructions to students	
• Teacher provides constructive and positive feedback	
Programme specificity	
• Adheres to activities as designed, unless specifically mentioned in manual that able to individualise	
Student responsiveness	
• Most students are actively engaged or willingly compliant	
Total score = total number of 'yes'	/ 18

MODULE TEN – LETS CELEBATE

Intervention component	Achieved (Yes/No)
Adherence	
<ul style="list-style-type: none"> Used PowerPoint resource as additional visual support 	
<ul style="list-style-type: none"> Briefly outlined learning objectives or content of the lesson 	
<ul style="list-style-type: none"> Supported students to share their work with parents who attend for the lesson. 	
<ul style="list-style-type: none"> Explained presentation activity. 	
<ul style="list-style-type: none"> Encouraged a select number of groups to present their presentation to the class. 	
<ul style="list-style-type: none"> Facilitated students to identify 4 or 5 things that students can say or do to make others feel accepted, respected and included at school. 	
<ul style="list-style-type: none"> Congratulated students for completing the In My Shoes program and presented with certificates. 	
<ul style="list-style-type: none"> Reviewed key messages at the end of the lesson and made reference to next week's lesson 	
Duration and exposure	
<ul style="list-style-type: none"> Approximately 45 minutes spent on session content (<i>detail specific amount of time spent on lesson</i>) 	
Quality of delivery	
<ul style="list-style-type: none"> Teacher comes prepared (i.e., uses PowerPoint on smart/white board; has printed worksheets as required etc.) 	
<ul style="list-style-type: none"> Teacher is encouraging and enthusiastic 	
<ul style="list-style-type: none"> Teacher gives explicit instructions to students 	
<ul style="list-style-type: none"> Teacher provides constructive and positive feedback 	
Programme specificity	
<ul style="list-style-type: none"> Adheres to activities as designed, unless specifically mentioned in manual that able to individualise 	
Student responsiveness	
<ul style="list-style-type: none"> Most students are actively engaged or willingly compliant 	
Total score = total number of 'yes'	/ 15

Appendix G9: In My Shoes Post-Intervention Student Feedback Survey

Student name: _____

Date: _____

What did you think of *In My Shoes*?

<i>Please circle your answer below</i>				
1. <i>In My Shoes</i> was fun;	Strongly Disagree	Disagree	Agree	Strongly Agree
2. I enjoyed <i>In My Shoes</i>	Strongly Disagree	Disagree	Agree	Strongly Agree
3. <i>In My Shoes</i> activities were interesting;	Strongly Disagree	Disagree	Agree	Strongly Agree
4. <i>In My Shoes</i> activities made sense to me;	Strongly Disagree	Disagree	Agree	Strongly Agree
5. <i>In My Shoes</i> activities were easy to do;	Strongly Disagree	Disagree	Agree	Strongly Agree
6. The lessons taught in <i>In My Shoes</i> are important;	Strongly Disagree	Disagree	Agree	Strongly Agree
7. I learnt something new from <i>In My Shoes</i> ;	Strongly Disagree	Disagree	Agree	Strongly Agree

What was your favourite part about *In My Shoes*?

What was your *least* favourite part about *In My Shoes*?

Is there anything that could be changed to make *In My Shoes* better?

In My Shoes Pilot Parent Feedback

Start of Block: Default Question Block

Q1 PARENT FEEDBACK

Thank-you for agreeing to participate in the *In My Shoes* pilot. I really appreciate your support and your feedback via the parent interview and this survey.

This survey is **anonymous**. It should take approximately 5 - 10 minutes to complete depending on your responses. Please answer the questions as honestly and with as much detail as you can, so that we can make improvements to the *In My Shoes* program in the future.

In My Shoes was a positive experience for me and my child

- 6. Strongly Agree (1)
- 7. Agree (2)
- 8. Neutral (3)
- 9. Disagree (4)
- 10. Strongly Disagree (5)

Display This Question:

If PARENT FEEDBACK Thank-you for agreeing to participate in the *In My Shoes* pilot. I really apprec... = Disagree

Or PARENT FEEDBACK Thank-you for agreeing to participate in the *In My Shoes* pilot. I really apprec... = Strongly Disagree

Q2 If you selected 'disagree' or 'strongly disagree', please share details of your experience

Q3 The content of *In My Shoes* is relevant in supporting the school participation of students with ASD in mainstream schools

**School participation is comprised of two essential components: "attendance, defined as 'being there' and measured as frequency of attending, and/or the range or diversity of*

activities; and involvement, the experience of participation while attending” (Imms et al., 2016, p. 18)

- 11. Strongly Agree (1)
- 12. Agree (2)
- 13. Neutral (3)
- 14. Disagree (4)
- 15. Strongly Disagree (5)

Display This Question:

If The content of In My Shoes is relevant in supporting the school participation of students with AS... = Disagree

Or The content of In My Shoes is relevant in supporting the school participation of students with AS... = Strongly Disagree

Q4 If you selected 'disagree' or 'strongly disagree', please provide your reasoning here

Q5 The content of In My Shoes is relevant in supporting the school connectedness of students with ASD in mainstream schools

**School connectedness refers to the "...extent to which a student feels personally accepted, respected, included and supported by others in the school environment" (Goodenow, 1993)*

- 16. Strongly Agree (1)
- 17. Agree (2)
- 18. Neutral (3)
- 19. Disagree (4)
- 20. Strongly Disagree (5)

Display This Question:

If The content of In My Shoes is important in supporting the school participation of students with A... = Disagree

And The content of In My Shoes is important in supporting the school participation of students with A... = Strongly Disagree

Q6 If you selected 'disagree' or 'strongly disagree', please provide your reasoning here

Q5 The content of *In My Shoes* is important in supporting the school participation of students with ASD in mainstream schools

**School participation is comprised of two essential components: "attendance, defined as 'being there' and measured as frequency of attending, and/or the range or diversity of activities; and involvement, the experience of participation while attending" (Imms et al., 2016, p. 18)*

21. Strongly Agree (1)

22. Agree (2)

23. Neutral (3)

24. Disagree (4)

25. Strongly Disagree (5)

Display This Question:

If The content of In My Shoes is important in supporting the school participation of students with A... = Disagree

Or The content of In My Shoes is important in supporting the school participation of students with A... = Strongly Disagree

Q6 If you selected 'disagree' or 'strongly disagree', please provide your reasoning here

Q7 The content of *In My Shoes* is important in supporting the school connectedness of students with ASD in mainstream schools

**School connectedness refers to the "...extent to which a student feels personally accepted, respected, included and supported by others in the school environment" (Goodenow, 1993)*

26. Strongly Agree (1)

27. Agree (2)

28. Neutral (3)

29. Disagree (4)

30. Strongly Disagree (5)

Display This Question:

If The outcomes of In My Shoes were beneficial to my child = Disagree

Or The outcomes of In My Shoes were beneficial to my child = Strongly Disagree

Q8 If you selected 'disagree' or 'strongly disagree', please provide your reasoning here

Q9 The outcomes of *In My Shoes* were beneficial to my child

31. Strongly Agree (1)

32. Agree (2)

33. Neutral (3)

34. Disagree (4)

35. Strongly Disagree (5)

Display This Question:

If The outcomes of In My Shoes were beneficial to my child = Disagree

Or The outcomes of In My Shoes were beneficial to my child = Strongly Disagree

Q8 If you selected 'disagree' or 'strongly disagree', please provide your reasoning here

Q9 The parent involvement required in *In My Shoes* was manageable (e.g., reading weekly parent information handouts; trying to incorporate suggested strategies at home; attending/participating in Module 10).

36. Strongly Agree (1)

37. Agree (2)

38. Neutral (3)

39. Disagree (4)

40. Strongly Disagree (5)

Display This Question:

If The parent involvement required in In My Shoes was manageable (e.g., reading weekly parent inform... = Disagree

Or The parent involvement required in In My Shoes was manageable (e.g., reading weekly parent inform... = Strongly Disagree

Q10 If you selected 'disagree' or 'strongly disagree', please provide your reasoning here.

Q11 I read weekly parent information handouts sent home from school detailing content covered in lessons and strategies I can incorporate at home to support my child's learning.

41. Yes (5)

42. No (6)

Display This Question:

If I read weekly parent information handouts sent home from school detailing content covered in less... = No

Q12 If you selected 'no', please share the reason/s why you may have found it difficult to read weekly parent information handouts.

Q13 I attempted to incorporate strategies suggested in parent information handouts to support my child's learning at home.

43. Yes (5)

44. No (6)

Display This Question:

If I attempted to incorporate strategies suggested in parent information handouts to support my chil... =
No

Q14 If you selected 'no', please share the reason/s why you may have found it difficult to incorporate strategies at home.

Q15 Please provide any feedback about how we can improve parent information handouts and/or parent involvement in the *In My Shoes* program.

Q16 *In My Shoes* has made sustainable change for the school participation of my child

**School participation is comprised of two essential components: "attendance, defined as 'being there' and measured as frequency of attending, and/or the range or diversity of*

activities; and involvement, the experience of participation while attending” (Imms et al., 2016, p. 18)

- 45. Strongly Agree (1)
 - 46. Agree (2)
 - 47. Neutral (3)
 - 48. Disagree (4)
 - 49. Strongly Disagree (5)
-

Display This Question:

*If In My Shoes has made sustainable change for the school participation of my child *School particip... = Disagree*

*Or In My Shoes has made sustainable change for the school participation of my child *School particip... = Strongly Disagree*

Q17 If you selected 'disagree' or 'strongly disagree', please provide your reasoning here.

Q18 In My Shoes has made sustainable change for the school connectedness of my child

**School connectedness refers to the "...extent to which a student feels personally accepted, respected, included and supported by others in the school environment" (Goodenow, 1993)*

- 50. Strongly Agree (1)
 - 51. Agree (2)
 - 52. Agree (3)
 - 53. Disagree (4)
 - 54. Strongly Disagree (5)
-

Display This Question:

*If In My Shoes has made sustainable change for the school connectedness of my child *School connecte... = Disagree*

*And In My Shoes has made sustainable change for the school connectedness of my child *School connecte... = Strongly Disagree*

Q19 If you selected 'disagree' or 'strongly disagree', please provide your reasoning here.

Q20 I would recommend *In My Shoes* to other parents or schools

55. Strongly Agree (1)

56. Agree (2)

57. Neutral (3)

58. Disagree (4)

59. Strongly Disagree (5)

Display This Question:

If I would recommend In My Shoes to other parents or schools = Disagree

Or I would recommend In My Shoes to other parents or schools = Strongly Disagree

Q21 If you selected 'disagree' or 'strongly disagree', please provide your reasoning here.

Q22 Please provide any other feedback you have about the *In My Shoes* program or your experience here

End of Block: Default Question Block

In My Shoes Teacher Pilot Feedback

Start of Block: Feasibility and Appropriateness

Q1 FEASIBILITY AND APPROPRIATENESS

Thank-you so much for implementing *In My Shoes* in your classroom this term. I really appreciate the time and effort you have taken to implement the program and provide your feedback in the interview and via this survey.

This survey is anonymous. Please answer the questions as honestly and with as much detail as you can, so that we can make improvements to *In My Shoes* in the future.

In My Shoes was a positive experience

60. Strongly Agree (1)

61. Agree (2)

62. Neutral (3)

63. Disagree (4)

64. Strongly Disagree (5)

Display This Question:

If FEASIBILITY AND APPROPRIATENESS Thank-you so much for implementing *In My Shoes* in your classroom... = Neutral

Or FEASIBILITY AND APPROPRIATENESS Thank-you so much for implementing *In My Shoes* in your classroom... = Disagree

Or FEASIBILITY AND APPROPRIATENESS Thank-you so much for implementing *In My Shoes* in your classroom... = Strongly Disagree

Q2 If you selected 'neutral', 'disagree' or 'strongly disagree', please share details of your experience delivering *In My Shoes*

Q3 The content of *In My Shoes* was relevant

- 65. Strongly Agree (1)
 - 66. Agree (2)
 - 67. Neutral (3)
 - 68. Disagree (4)
 - 69. Strongly Disagree (5)
-

Display This Question:

If The content of In My Shoes was relevant = Neutral
Or The content of In My Shoes was relevant = Disagree
Or The content of In My Shoes was relevant = Strongly Disagree

Q4 If you selected 'neutral', 'disagree' or 'strongly disagree', please provide your reasoning here.

Q5 The content of *In My Shoes* was important

- 70. Strongly Agree (1)
 - 71. Agree (2)
 - 72. Neutral (3)
 - 73. Disagree (4)
 - 74. Strongly Disagree (5)
-

Display This Question:

If The content of In My Shoes was important = Neutral
Or The content of In My Shoes was important = Disagree
Or The content of In My Shoes was important = Strongly Disagree

Q6 If you selected 'neutral', 'disagree' or 'strongly disagree', please provide your reasoning here.

Q7 The outcomes of *In My Shoes* were beneficial

- 75. Strongly Agree (1)
- 76. Agree (2)
- 77. Neutral (3)
- 78. Disagree (4)
- 79. Strongly Disagree (5)

Display This Question:

If The outcomes of In My Shoes were beneficial = Neutral
Or The outcomes of In My Shoes were beneficial = Disagree
Or The outcomes of In My Shoes were beneficial = Strongly Disagree

Q8 If you selected 'neutral', 'disagree' or 'strongly disagree', please provide your reasoning here.

Q9 *In My Shoes* has made sustainable change in my classroom

- 80. Strongly Agree (1)
- 81. Agree (2)
- 82. Neutral (3)
- 83. Disagree (4)
- 84. Strongly Disagree (5)

Display This Question:

If In My Shoes has made sustainable change in my classroom = Neutral
Or In My Shoes has made sustainable change in my classroom = Disagree
Or In My Shoes has made sustainable change in my classroom = Strongly Disagree

Q10 If you selected 'neutral', 'disagree' or 'strongly disagree', please provide your reasoning here.

Q11 I would recommend *In My Shoes* to other schools and/or teachers

85. Strongly Agree (1)

86. Agree (2)

87. Neutral (3)

88. Disagree (4)

89. Strongly Disagree (5)

Display This Question:

If I would recommend In My Shoes to other schools and/or teachers = Neutral

Or I would recommend In My Shoes to other schools and/or teachers = Disagree

Or I would recommend In My Shoes to other schools and/or teachers = Strongly Disagree

Q12 If you selected 'neutral', 'disagree' or 'strongly disagree', please provide your reasoning here.

Q13 Please provide any specific feedback you have about *In My Shoes* lesson plans (e.g., module topics; type and range of activities; length of lesson etc.), including suggestions of how you think I can improve lesson plans.

Q14 Please provide any specific feedback you have about *In My Shoes* resources (e.g., online professional learning videos, manual, powerpoint presentation used alongside lesson plans, interactive videos, worksheets), including suggestions of how you think I can improve program resources.

Q15 Please provide any specific feedback you have about Module 2 (Learning about Autism Spectrum Disorders). Specifically, whether you: feel it was important to include an autism specific module in the program; recommend any changes to the lesson plan itself; recommend any other considerations for teachers preparing for the lesson that were not specified in the manual.

Q16 Please provide any feedback about recommended parent involvement in the *In My Shoes* program. For example, whether parent involvement was feasible; how parents responded to parent information handouts and invitations to participate and/or any recommended changes to parent component of the *In My Shoes* program.

End of Block: Feasibility and Appropriateness

Start of Block: Fidelity

Q14 FIDELITY

The following questions ask you to share details of how you delivered the *In My Shoes* program in your classroom.

How many *In My Shoes* modules were delivered to your classroom?

- 90. 1 of 10 (1)
- 91. 2 of 10 (2)
- 92. 3 of 10 (3)
- 93. 4 of 10 (4)
- 94. 5 of 10 (5)
- 95. 6 of 10 (6)
- 96. 7 of 10 (7)
- 97. 8 of 10 (8)
- 98. 9 of 10 (9)
- 99. 10 of 10 (10)

Q15 Did you deliver all of the *In My Shoes* modules?

- 100. Yes (1)
- 101. No (2)

Display This Question:

If Did you deliver all of the In My Shoes modules? = No

Q16 If you selected 'no', what modules did you deliver?

- ☐ Module 1 (1)
- ☐ Module 2 (2)
- ☐ Module 3 (3)
- ☐ Module 4 (4)
- ☐ Module 5 (5)
- ☐ Module 6 (6)
- ☐ Module 7 (7)
- ☐ Module 8 (8)
- ☐ Module 9 (9)
- ☐ Module 10 (10)

Display This Question:

If Did you deliver all of the In My Shoes modules? = No

Q17 If you selected 'no', who delivered the remaining modules?

Display This Question:

If Did you deliver all of the In My Shoes modules? = No

Q18 If you selected 'no', please share the reason/s why you were unable to deliver all the modules

Q19 Over how many weeks did you deliver the In My Shoes program?

- 102. 1 (1)
- 103. 2 (2)
- 104. 3 (3)
- 105. 4 (4)
- 106. 5 (5)
- 107. 6 (6)
- 108. 7 (7)
- 109. 8 (8)
- 110. 9 (9)
- 111. 10 (10)

Q20 Approximately how many minutes did you spend preparing for *In My Shoes* lessons?

Q21 Approximately how many minutes did you spend delivering *In My Shoes* lessons in your classroom each week?

Q22 Please provide any other feedback you have about the *In My Shoes* program or your experience here

End of Block: Fidelity

Appendix G12: Parent Post-Intervention Interview Guide

PARENT INTERVIEW GUIDE **POST-INTERVENTION**

Thank you for taking part in this interview today.

I will audio record this interview and it will be transcribed. The responses you provide will be de-identified (you will not be identifiable to others) so that your comments remain confidential and used for research purposes only. If at any stage during the interview you no longer want to participate or become distressed, you are in no way obligated to continue. We do not anticipate that the interview will be upsetting, however if this was to occur, your responses would be destroyed and would not be included in this research.

Do you have any questions?

Do you consent to participating in this interview?

- Thank-you so much for participating in *In My Shoes* and completing all of the questionnaires that has come with the pilot – I really appreciate the time and effort you have taken and for meeting with me today.
- Today I would like to talk with you about your experiences participating in the program, specifically whether you feel there has been any benefit to [insert name of child], yourself or the school and whether you recommend any changes to the program.
- I know that it can be hard sometimes to get much feedback about what happens at school, so the questions I ask today are purely to get your perspective as [insert name of child] mother/father based on what you know to be true. This might be based on what [insert name of child] comes home from school and tells you, what you have observed at home or school or feedback you have received from his teacher, peers or parents. I have already interviewed [insert name of child] classroom teacher to hear their perspective.
 - So, let's get started –
 - **In your opinion, do you think [insert name of child] has experienced any benefits as a result of participating in the In My Shoes program this term? If so, can you please share some specific examples with me?**
 - *Prompts: Use parents responses in pre-interview and HSCBS to help elicit specific information about changes in students with ASD skills in interpersonal skills and prosocial behaviour. For example, you mentioned when we talked before the start of term that [insert name of child] finds [insert specific information] particularly difficult at school, has there been any change with that and do you feel this is*

because of In My Shoes or other factors? Are you aware of any benefits or changes in [insert name of child]: ability to recognise body clues and infer other people's thoughts and feelings? interacts with peers/teachers?/ his/her relationship with peers/teachers/ his/her ability to resolve conflict in the classroom or playground? his/her ability to ask for help and to help peers? his/her feelings of belonging or inclusion at school? his/her awareness of his/her strengths, differences and/or diagnosis?

- **Do you think you as [insert name of child] parent have experienced any benefits as a result of participating in In My Shoes? If so, can you please share some specific examples with me?**
- *Prompts: has your relationship with [insert name of child] teacher or school changed in any way? do you have any more of an understanding of your child's participation or connection to school?*
- **Do you think [insert name of child] peers have experienced any benefits as a result of participating in In My Shoes? If so, can you please share some specific examples with me?**
- *Prompts: do you feel peers are more aware of autism or differences in the classroom? Can you share examples of what you have seen or heard from [insert name of child] or others to believe this to be true?*
- **Do you think [insert name of child] teacher has experienced any benefits as a result of participating in In My Shoes? If so, can you please share some specific examples with me?**
- *Prompts: do you feel they have a better understanding of autism and/or [insert name of child] needs? do you feel they are better equipped to students with autism or differences and inclusion in the classroom ?*
- **From your perspective, what do you think [insert name of child] has enjoyed the most about In My Shoes?**
- *Prompts: was there a particular module, activity or aspect of the program that he enjoyed more than others?*
- **From your perspective, is there any aspect of the program that you feel [insert name of child] did not enjoy or respond well to?**
- *Prompts: did he/she mention there was a particular module, activity or aspect of the program that he didn't like?*
- **As part of the program, all parents were meant to be sent weekly parent information handouts detailing content of each lesson and strategies they could incorporate at home to support their child's learning as well as be invited to participate in Module 10**

of the program. Based on your experience, can you please share any feedback you have about recommended parent involvement in In My Shoes?

- *Prompts: do you feel parents were involved enough / too much / too little? were the parent information handouts helpful? do you feel the invitation to participate in Module 10 was feasible for parents to attend? do you have any more ideas of ways we can involve parents in the program in a meaningful way?*
- **Now I'd like to talk about any feedback you have about Module 2, which was the only autism specific module in the program. This module aimed to increase all students' understanding of autism by sharing a video of real-life students with autism sharing their experiences of school. A lot of thought went into whether we should include this module in the program and how best to include this information for students. Can you please share your experiences and did that change your view about whether the module should be included or not?**
- *Prompts: how did [insert name of child] respond to this module? do you feel it was important to include an autism specific module in the program? can you recommend any changes to this module? can you recommend any considerations for teachers preparing for the lesson that were not specified in the manual.*
- **Do you have any suggestions of ways that we could improve *In My Shoes for the future*?**
- *Prompts: do you have any recommended changes to the content or the program or parent information handouts? Do you have any feedback about ways we can better support students with ASD and their parents when participating in In My Shoes?*
- **As part of your participation in the pilot of *In My Shoes*, you have been asked to complete a number of research measures and participate in interviews. The purpose of this research has been to establish preliminary effectiveness and feasibility of the program in a small sample of schools before it is tested more widely. Can you please share your experience participating in the research (i.e., completing parent questionnaires; supporting [insert name of child] with ESM device) so that we can make sure future research is planned appropriately.**
- *Prompts: how long did it take you to complete parent questionnaires and was this manageable? how did [your child] respond to the smart device survey? did they need your support to respond to questions on the device?*
 - **Was this the first time you and your child have participated in research? If yes, was your experience similar or different to your previous experiences participating in research? If no, what was your experience like?**
- Those are all the questions we have today. Do you have any other comments about the In My Shoes? Thank you very much for participating in this interview. We really appreciate your time and it's a huge help to make *In My Shoes* as good as it can be.

Appendix G13: Teacher Post-Intervention Interview Guide

TEACHER INTERVIEW GUIDE **POST-INTERVENTION**

Thank you for taking part in this interview today.

I will audio record this interview and it will be transcribed. The responses you provide will be de-identified (you will not be identifiable to others) so that your comments remain confidential and used for research purposes only. If at any stage during the interview you no longer want to participate or become distressed, you are in no way obligated to continue. We do not anticipate that the interview will be upsetting, however if this was to occur, your responses would be destroyed and would not be included in this research.

Do you have any questions?

Do you consent to participating in this interview?

- Thank-you for implementing *In My Shoes* in your classroom this term and completing all of the questionnaires that has come with the pilot – I really appreciate the time and effort you have taken and for meeting with me today.
- Today I would like to talk with you about your experiences participating in *In My Shoes*. I'd like to start by getting your perspectives whether there has been any benefit to you, *[insert name of child]* or the school in participating in *In My Shoes* and if you recommend any changes to the program; and then talk more specifically about the feasibility of implementing the program in your classroom.
- So, let's get started –
 - **In your opinion, do you think *[insert name of child]* has experienced any benefits as a result of participating in *In My Shoes*? If so, can you please share some specific examples with me?**
 - *Prompts: Use responses from pre-interview and post-intervention SSBS to help elicit specific information about changes in students with ASD skills in interpersonal skills and prosocial behaviour. For example, you mentioned when we talked before the start of term that [insert name of child] finds [insert specific information] particularly difficult at school, has there been any change and do you think this is because of In My Shoes or other factors? Are you aware of any benefits or changes in: the way [insert name of child] interacts with peers/teachers?/ his/her relationship with peers/teachers/ his/her ability to resolve conflict in the classroom or playground? his/her ability to ask for help and*

to help peers? his/her feelings of belonging or inclusion at school? his/her awareness of his/her strengths, differences and/or diagnosis?

- **Do you think you have experienced any benefits as a result of participating in *In My Shoes*? If so, can you please share some specific examples with me?**
- *Prompts: have you learnt anything new? has your understanding of autism changed? has your understanding of [insert name of student] changed? has your confidence in supporting students with autism changed? has your confidence in supporting inclusion and difference in your classroom changed?*
- **Do you think peers have experienced any benefits as a result of participating in *In My Shoes*? If so, can you please share some specific examples with me?**
- *Prompts: are you aware of any benefits or changes in: their ability to recognise body clues and infer other people's thoughts and feelings? the way students interact with each other in the classroom or playground? students relationships with each other, with you or other teachers? their ability to resolve conflict in the classroom or playground? their ability to ask for help and to help peers in the classroom or playground? their feelings of belonging or inclusion at school? their awareness of their strengths and differences? their understanding of autism and [insert name of child]? are these changes noted both in the classroom and playground or in just one context?*
- **Do you think parents have experienced any benefits as a result of receiving the weekly parent information handouts? If so, can you please share some specific examples with me?**
- *Prompts: Do you think they are more aware of autism or neurodiversity? Do you think it has changed their attitudes or beliefs about difference?*
- **Do you have any feedback about recommended parent involvement in the program (i.e., weekly parent information handouts; invitation to participate in Module 10)? Do you think parents could have been more involved and if so what would it look like?**
- *Prompts: was it feasible for you to send information handouts every week? from your perspective, was it feasible for parents to read and try to incorporate strategies at home? what was parent's reaction/response to parent information handouts (if any)? Do you have any recommended changes to parent involvement in the program?*

- **Do you think the school as a whole has experienced any benefits as a result of participating in *In My Shoes*? If so, can you please share some specific examples with me?**
- The next series of questions focus on your perspectives on the feasibility *In My Shoes* – firstly, how easy it was to implement the program in your classroom and any changes you would recommend and then more broadly about your experiences with the research associated with the pilot.
 - **How easy was it to implement *In My Shoes* in your classroom?**
 - Prompts: *how did you find navigating the online manual and resources? were the lesson plans easy to follow and understand? was the professional learning helpful in supporting your understanding of the program? when and how did you incorporate the program into the school day/ week and how easily was this done? was the time allocated to lesson plans realistic/ sufficient? how much time did you have to spend preparing and was this manageable?*
 - **How did students respond to the program and resources?**
 - Prompts: *were students engaged in content of the program? were their modules, activities or resources that students responded to or were engaged with more than others? how did students respond to the ASD specific video in Module 2? how did students respond to the Look, Think, Decide videos in Module 3? were their modules, activities or resources that students did not respond to or were not engaged with as much as others?*
 - **Do you have any suggestions of ways that we could improve *In My Shoes*?**
 - Prompts: *do you have any recommended changes to lesson plans (i.e., number of lessons, length of lessons, changes to activity ideas, additional scaffolding etc), professional learning (i.e., duration, face-to-face content versus supplementary material), manual or other resources (i.e., PowerPoint presentation, worksheets, video resources)?*
 - **Can you describe any barriers you experienced in using *In My Shoes*? If you experienced barriers can you share any ideas of ways to address these barriers?**
 - Prompts: *did any parents express concern about their child's involvement in the program? did you have any problems completing the program within the time frame? were there any student or teacher absences that impacted on the delivery of the program?*
 - **Please describe anything that supported you to implement *In My Shoes*?**

- *Prompts: were any of the resources or supports provided particularly helpful? was there anything that your school or school administrative staff did to support you in using the program that was particularly helpful?*
- **What else could we have done to help or support you to use *In My Shoes*?**
- *Prompts: were the weekly emails helpful? were the frequency of researcher contact appropriate? was the length and content of professional learning appropriate?*
- **How well do you think *In My Shoes* addressed curriculum outcomes that it claimed to?**
- *Prompts: were links to the curriculum accurate? were there any links to curriculum that were missed? did the program replace aspects of existing health or did you use it as an add on?*
- **Did your school incorporate any recommended whole-school activities?**
 - **If not, why not? What were the barriers to being able to implement this aspect of the program?**
 - **If yes, please share details of what activities were incorporated and your experience with this?**
- **As part of your participation in the pilot of *In My Shoes*, you have been asked to complete a number of research measures and participate in interviews. The purpose of this research has been to establish preliminary effectiveness and feasibility of the program in a small sample of schools before it is tested more widely. Can you please share your experience participating in the research (i.e., completing teacher questionnaires; administering student questionnaires; supporting *[insert name of student]* with ESM device) so that we can make sure future research is planned appropriately.**
- *Prompts: how long did it take you to administer student measures in Week 1 and 10 and was this manageable? how did you accommodate this into your week? how did students respond to questionnaires? did they understand items or need support to understand and respond? do you think measures used accurately captured change in students skills/behaviour? how else would you recommend observing/measuring change in this population of students?*
 - **Was this the first time you have participated in research? If yes, was your experience similar or different to your previous experiences participating in research? If no, what was your experience like?**
- Those are all the questions we have today.
- Do you have any other comments about the *In My Shoes* you'd like to share before we finish?

- Thank you very much for participating in this interview – I really appreciate your time and it's a huge help to make *In My Shoes* as good as it can be.

Appendix G14: Hoffman and colleagues (2014) Template for Intervention

Description and Replication (TIDieR) checklist

Item Number	Item
Brief name	
1	Provide the name or a phrase that describes the intervention
Why	
2	Describe any rationale, theory, or goal of the elements essential to the intervention
What	
3	Materials: Describe any physical or informational materials used in the intervention, including those provided to participants or used in intervention delivery or in training of intervention providers. Provide information on where the materials can be accessed (such as online appendix, URL)
4	Procedures: Describe each of the procedures, activities and/or processes used in the intervention, including any enabling or support activities
Who provided	
5	For each category of intervention provider (such as psychologist, nursing assistant), describe their expertise, background and any specific training given.
How	
6	Describe the modes of delivery (such as face to face or by some other mechanism, such as internet or telephone) of the intervention and whether it was provided individually or in a group
Where	
7	Describe the type(s) of location(s) where the intervention occurred, including any necessary infrastructure or relevant features
When and How Much	
8	Describe the number of times the intervention was delivered and over what period of time including the number of sessions, their schedule, and their duration, intensity or dose.
Tailoring	

Item Number	Item
9	If the intervention was planned to be personalised, titrated or adapted, then describe what, why, when and how.
Modifications	
10	If the intervention was modified during the course of the study, describe the changes (what, why, when and how)
How well	
11	Planned: If intervention adherence or fidelity was assessed, describe how and by whom, and if any strategies were used to maintain or improve fidelity, describe them
12	Actual: If intervention adherence or fidelity was assessed, describe the extent to which the intervention was delivered as planned

Appendix H: ***In My Shoes Resources***

Appendix H1: Professional Learning Supplementary Pre-Reading



PROFESSIONAL LEARNING Supplementary Information 1

Autism Spectrum Disorder

The term Autism Spectrum Disorder (ASD) refers to a spectrum of neurodevelopmental disorders that are characterised by persistent difficulties in social communication and restricted, repetitive patterns of behaviour and interests of activities as diagnosed by the Diagnostic and Statistical Manual of Mental Health Disorders-Version 5¹. Although a comprehensive description of ASDs is beyond the scope of this resource, a brief overview of the characteristic features of ASDs is provided below. To successfully deliver the *In My Shoes* program, teachers must have a good understanding of the characteristics of ASDs and how these may impact students' school participation.



How prevalent is ASD?

In Australia 1 in 150 people have a diagnosis of ASD. Boys are 3.5 times more likely than girls to have ASD, with prevalence rates of 1.3% and 0.4% respectively². Approximately 70% of students with ASDs are being educated in mainstream classrooms. Of the 106,600 young people with ASDs attending school or another educational institution, 77.7% reported experiencing difficulty at their place of learning. Of those experiencing difficulties, the main problems encountered were fitting in socially (59.8%), learning difficulties (55.3%) and communication difficulties (51.5%)³.

What causes ASDs?

No single identifiable causes for ASDs have been determined although genetic, neurological and cognitive factors have been implicated in the aetiology of ASDs.

What are the characteristics of ASDs?

Social communication

A primary characteristic of ASDs is difficulties with social communication

For example, students may need support to:

- initiate and maintain conversation;
- understand verbal and non-verbal communication of peers;
- use and regulate non-verbal behaviours such as eye contact, facial expression, body postures, tone of voice, personal space and boundaries;
- understand and apply implicit social rules;
- interpret figurative language (e.g., jokes, sarcasm, metaphors); and/or engage in and maintain play with peers.

Students may, for example:

- require visual supports to support communication (e.g., schedules, first/then, break cards, visual emotional regulation systems such as Zones of Regulation or use of feelings thermometer);
- need teachers to explicitly explain metaphors, jokes or sarcasm (e.g., "pull your socks up" means that you should start working or work harder not actually pull your socks up) and
- need to be explicitly taught social skills and given opportunities to practice them in natural environments.

1



Behaviour

Behaviours of students with ASDs may be repetitive, stereotyped and may reflect restricted or intense interests.

For example, behavioural markers may:

- take the form of repetitive motor movements (e.g., hand flapping)
- take the form of all-encompassing interests (e.g., Lego, plumbing systems);
- reflect the need to maintain an interest or routine; and/or
- include atypical behaviour reflecting difficulties with flexible thinking.

Students may, for example:

- experience difficulty with change and become anxious in unfamiliar situations so it is recommended teachers prepare students for change with appropriate supports;
- have all encompassing interests or need to maintain an interest or routine so teachers must recognise that abruptly preventing students from engaging in behaviours may increase the students' stress levels and reduce their capacity to learn;
- may have different priorities and interests to peers so teachers need to be aware that students may be vulnerable to bullying and social isolation; and/or
- be strongly motivated by special topics of interest and find classwork more interesting and meaningful if strengths and interests can be incorporated into learning tasks.

Beyond the core features

Theory of mind

Students with ASDs can have difficulty conceptualising that other people have mental states, intentions, needs, desires and beliefs, which may be different to their own.

For example, students may have difficulties:

- understanding and appreciating the mental state of peers;
- reading emotional states of peers;
- monitoring their own emotions;
- reading body language;
- predicting behaviour;
- explaining their own behaviour to others;
- understanding the impact of their own behaviour
- sharing attention and engage in eye contact and/or
- using their imagination in fiction, role play or other activities.

Students may, for example, need:

- visual reminders about how to access help in the classroom;
- help to identify specific body clues in others that may help them to recognise what a peer might be thinking and feeling;
- opportunities to practice social skills with strategies and support; and/or
- you to help peers understand their interpersonal difficulties so they can be more understanding and accepting.

2



Executive functioning

Executive functioning is a set of mental skills that include working memory, flexible thinking and self-control.

For example, students may have difficulties with:

- planning and organisation
- shifting attention, impulse control, initiation and perseverance
- self-monitoring and/or
- behaving flexibly.

Students may, for example, need help to:

- understand emotions;
- plan and organise their work or environment (e.g., colour code materials, give instructions in the sequence in which it will occur)
- start, stop and transition between activities, tasks or environments by giving warning and using visual supports; and/or
- access the curriculum through task and environmental adaptations (e.g. breaking down instructions into smaller steps and presenting visually)

Weak central coherence

Central coherence is the ability to understand context or to see the bigger picture.

For example, students may:

- overly focus on details;
- find it difficult to understand which details are important and become overwhelmed;
- find it difficult to generalise learning to new environments; and/or
- have difficulty sequencing information.

Students, for example, may need:

- important details highlighted in texts or in their environment;
- help to identify similarities in learning to help them generalise;
- to practice new skills in different environments to be able to generalise skills;
- demonstration of relationships or sequences;
- help to deal with small mistakes; and/or
- help students move onto new material.

Sensory processing

Many students with ASDs have difficulty with sensory processing – that is, they may over or under react to visual, tactile, auditory, olfactory (smell), gustatory (taste), vestibular (balance) and proprioceptive (knowing where body is in space) input. Difficulties with sensory processing can make it hard for students with ASDs to participate in everyday school life such as focusing on a task in the classroom, going to assembly or waiting in line at the canteen.

Despite limited empirical evidence, there is considerable anecdotal and descriptive evidence on the impact of sensory processing on students with ASDs.

Students, for example, may need:

- access to regular sensory breaks or strategies throughout the day to help them regulate;
- more time to process verbal information;
- access to visual supports as students with ASDs tend to have good visual processing skills relative to auditory processing;

3



Strengths of students with ASDs

While many students experience challenges, students with autism also have many strengths and abilities⁴. For example, students with ASDs can:

- have a unique ability to absorb and retain information;
- have an affinity for structure and routine;
- be more likely to be 'outside the box' thinkers;
- have expert observational skills;
- be detail oriented;
- have a natural inclination towards qualities of integrity and honesty
- view the world through a lens that is less tainted by judgement;
- be unwaveringly loyal;
- be unrestrictedly passionate about what matters to them;
- be deeply empathetic in their own way;
- interpret information differently; and
- can experience the world through a completely different sensory lens.



Everyone is different. As the saying goes, if you have met one person with autism, you've met one person with autism. Autism is a diverse spectrum, so every student with autism presents a unique set of traits. It is important to always seek opportunities to understand students with autism on an individual level and be aware that strategies suggested may not generalise to every student or every situation.

Implications for the development of In My Shoes

When developing *In My Shoes*, considerable effort was taken to address cognitive factors that underlie ASDs' symptomatology. For example, the core concept of the program 'Look, Think, Decide' is designed to improve students' mind-reading skills by teaching them how to recognise simple and complex emotions in others and how to infer other people's thoughts from situational and non-verbal clues. Students are explicitly taught what information they need to focus on when trying to figure out how someone is feeling, therefore addressing difficulties in attending to and integrating important details in social contexts.

The inclusion of whole school activity ideas, parent information handouts and active learning strategies for skill development including video modelling and role play and encouraging generalisation of skills to the home environment also help students to generalise new skills. The step by step social problem solving of 'Look, Think, Decide' and the choice your own ending activities help to improve social problem solving and increase flexibility in responding to social challenges.



4

Further information and resources

If you would like more information about Autism Spectrum Disorders, please refer to the following resources:

Positive Partnerships
<https://www.positivepartnerships.com.au>



Simply create an online account on the online learning hub and get access to accredited programs, workshops and online learning for teachers and educators about how to support students on the autism spectrum.

Raising Children's Network
<https://raisingchildren.net.au/autism>



Specifically refer to the several videos on the autism section of this website which outline key information about autism and experiences of students with ASDs.

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5

PROFESSIONAL LEARNING

Supplementary Information 2

Evidence based intervention techniques

What intervention techniques are used in In My Shoes, and why?

In My Shoes incorporates several evidence-based intervention that have been found to be effective in improving skills in key areas including social communication and problem solving for students with ASDs. These intervention techniques were selected after an online survey with expert clinicians, educators and researchers about what intervention techniques would be feasible and appropriate within the school environment. Please see below for a summary of evidence for each intervention technique used in In My Shoes.

Intervention technique	What is the evidence?
Video modelling <ul style="list-style-type: none"> • Video modelling involves a student watching a video of themselves or another person engaging in target behaviours or skills on a video and then performing the behaviours or skills² • Video modelling is especially effective for students with ASDs because their visual perception abilities are often seen as an area of strength and students with ASDs are often known to favour visual treatment approaches^{3,4} 	<ul style="list-style-type: none"> • Improves skills including: <ul style="list-style-type: none"> ◦ problem solving⁵, ◦ transitioning between activities, tasks and places in school environment⁷ ◦ social communication skills such as perspective taking⁸, greetings and social initiation, conversational skills^{1, 3-11}, compliment giving¹⁰, and spontaneous requesting¹¹ ◦ play skills such as reciprocal pretend play and reciprocal verbal interaction during play^{12,13} • Facilitates rapid skill acquisition across settings, people and materials.
Role play <ul style="list-style-type: none"> • Direct instruction includes peer and teacher modelling which involves demonstrating a desired behavior to a student who can then reproduce the behaviour in imitation. 	<ul style="list-style-type: none"> • Improves social skills including: <ul style="list-style-type: none"> ◦ sportsmanship¹⁴, ◦ conversational turn taking including asking a question^{6, 15} and play dialogue^{16, 17}
Direct instruction <ul style="list-style-type: none"> • Direct instruction includes peer and teacher modelling which involves demonstrating a desired behavior to a student who can then reproduce the behaviour in imitation. 	<ul style="list-style-type: none"> • Improves social skills including play, sharing and problem solving^{18, 19, 20, 21}, • Facilitates generalisation of social skills learned to new people and settings²²⁻²⁴, • Improves use of inference, facts and analogies²⁵ and oral language skills²⁶.
Cognitive based strategies <p>Cognitive based strategies include:</p> <ul style="list-style-type: none"> • Self-management techniques such as monitoring, assessment, observation, recording, evaluation, instruction and reinforcement. • Cognitive behavioural techniques such as seeking evidence for and against the validity of thoughts, identifying 	<ul style="list-style-type: none"> • Improves social communication, social problem solving, play and transitioning between activities²⁷⁻²⁹, • Reduces school anxiety and social worry³⁰⁻³⁴, • Improves quality of life and wellbeing³⁵, • Increases understanding of own difficulties and improves ability to express needs³⁵, • Increases sense of belonging³⁵.

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<p>consequences for holding a particular belief, categorising thought distortions, positive reframing etc.³⁶ and</p> <ul style="list-style-type: none"> • Positive reinforcement. 	<ul style="list-style-type: none"> • Increases frequency of expected or appropriate behaviour³⁷.
Peer mediated intervention <ul style="list-style-type: none"> • Peer mediated instruction involves training neuro-typical peers to model and reinforced pre-determined academic or social behaviours^{37, 38}. 	<ul style="list-style-type: none"> • Improves on task behaviour³⁹, task completion⁴⁰, turn taking, social initiation and social responses⁴¹ and task completion⁴⁰. • Reduces solitary play in the playground⁴². • Facilitates active student engagement, frequent opportunities to respond and provide error correction, prompting and feedback⁴³. • Results in higher peer acceptance^{43, 44}.
Perspective taking activities <ul style="list-style-type: none"> • Perspective taking refers to the ability to determine mental states of others in order to explain or predict behaviour. 	<ul style="list-style-type: none"> • Improves: <ul style="list-style-type: none"> ◦ theory of mind⁴⁵, ◦ use of mental state words^{4, 46}, ◦ facial expression recognition and problem solving⁴⁷, and ◦ conversational skills⁴⁸. • Decreases prejudice, stereotyping and intergroup bias⁴⁹. • Improves empathy and attitudes towards stereotyped groups^{50, 51}.
Social support <ul style="list-style-type: none"> • Social support includes social, emotional and physical/tangible support from peers, teachers, parents or school staff. For example, social support from peers in form of buddy programs or mentoring programs. 	<ul style="list-style-type: none"> • Reduces incidence of bullying in schools⁵². • Improves social connectedness⁵³. • Reduces anxiety⁵⁴.
Task and environmental adaptations <ul style="list-style-type: none"> • Adaptations to the classroom (e.g. use of visual supports, arranging classroom furniture to define learning areas, improving accessibility and variability of materials, or improving organisation of materials) • increase range and diversity of activities available • increase opportunity to engage with peers in classroom and school wide activities 	<p>For example, visual supports improve:</p> <ul style="list-style-type: none"> • receptive and expressive communication⁵⁴, • joint attention⁵⁵, • memory recall⁵⁶, • attention to and understanding of social messages and behaviour⁵⁷, • social communicative intent⁵⁸, • initiation of activities⁵⁹. <p>For example, the use of technology improves:</p> <ul style="list-style-type: none"> • communication⁶⁰, • transitioning skills⁶¹, • independent task completion⁶².
Incorporate interests and allowing opportunity for choice and control	<p>Providing choices:</p> <ul style="list-style-type: none"> • improves performance, on-task behaviour, interest, accuracy, productivity, affect and academic performance⁶³⁻⁶⁸. • increases feelings of joy, enthusiasm and interest⁶⁹. • reduces disruptive behaviours⁷⁰.

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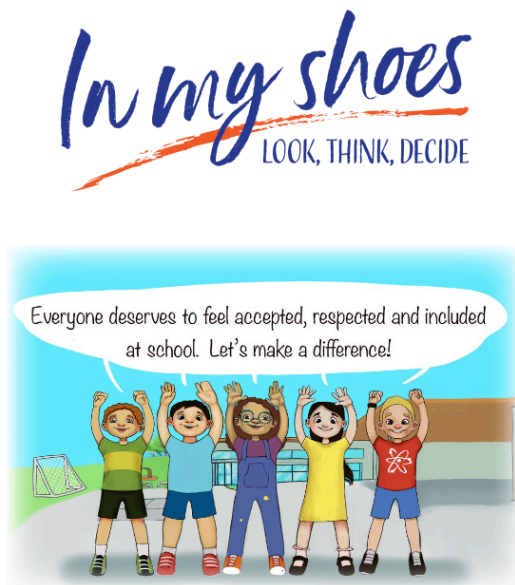
<p>Incorporating interests:</p> <ul style="list-style-type: none"> • Improves socialisation^{70, 71}, engagement and responsibility⁷²⁻⁷⁵. • Reduces disruptive behaviour⁷²⁻⁷⁵.
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Appendix H2: Intervention Manual (Preface Only)



SEE SCHOOL FROM A DIFFERENT PERSPECTIVE



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The authors of In My Shoes would like to acknowledge all of the participants of the research who assisted in developing the intervention including:

- parents and educators who shared their perspectives on the school participation of primary students with autism;
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- members of the consumer and stakeholder reference group, which included an occupational therapist, speech therapist, principal, learning support coordinator and parents of primary school students with autism, who consulted with the primary author key stages of the research;

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- Bianca Milacic who illustrated resources and
- WA Screen Academy who assisted in developing video resources.

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ABOUT THE AUTHORS



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with a range of disabilities, specialising in Autism Spectrum Disorder (ASD). She spent most of her time clinically providing community based consultative services to school aged students with ASD, their families and educators. Her work with students with ASD in schools piqued her interest in the area of inclusive education. In My Shoes is a product of her doctoral studies that aimed to develop and evaluate a school-based intervention to improve the school participation and connectedness of students with ASD in mainstream primary schools.



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NAVIGATING THIS RESOURCE

How do I use this manual?

This manual has been designed to be used as an electronic resource enabling you to click on hyperlinks in the document which take you directly to a section or page of the manual, activity sheet or to relevant external document. You will have access to a printed copy of the manual, however, you may find it easier to refer to a specific module and print relevant resources to suit the needs of your classroom.

A note on language

Person first language (e.g., student with autism) aims to put the person before their disability. In contrast, identity first language (e.g., autistic person), which is favoured by many autistic people, reflects the belief that being autistic is a core part of a person's identity. Some people have strong preferences about their language choices, while others do not and use terms interchangeably. Regardless of your own choices, it is important to respect that everyone has their own opinion and preferred way of communicating.

You will notice throughout the manual that we use language – student with autism or Autism Spectrum Disorder (ASD). This is because the manual has been developed for use by educators and professionals tend to prefer use of person first language'.

This being said, it is very important that schools and classroom teachers talk to student/s with autism and their parents about the language they prefer to use and use that.

Click here to jump to classroom modules

BACKGROUND OF IN MY SHOES

A social inclusion program that aims to improve the school participation and connectedness of primary school students with Autism Spectrum Disorder (ASD).

What is school participation and connectedness?

School participation has been defined as involvement in everyday school life including classroom activities, tasks and routines as well as "a subjective feeling of belonging to and being active in that school environment". This sense of belonging is often referred to as school connectedness. Connected students believe that their parents, teachers, school staff and peers care about them and about how well they are learning¹⁻⁴. Merely being present in a mainstream classroom does not lead to participation or connectedness and is not indicative of successful inclusion⁵. Students' participation at school and sense of connectedness is influenced by student specific factors such as students' interests and abilities as well as the features of their school environment⁶.

"It's more than just being there... it's about your child feeling a part of the school, a sense of belonging I guess... at least that's what I hope for anyway"

(Jessica, parent)

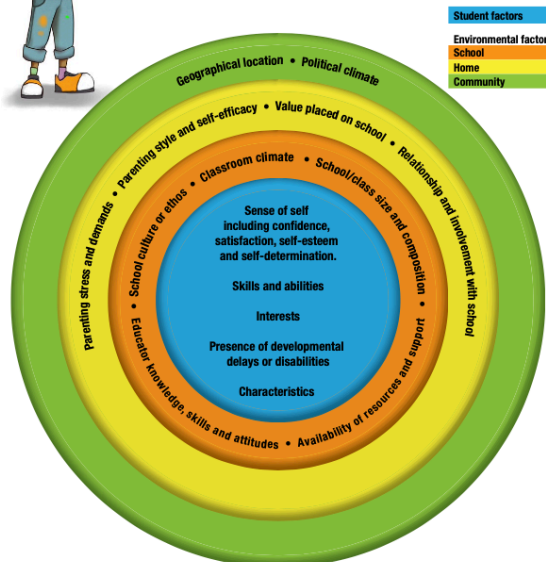


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Many factors can impact students' school participation. The relationship between these factors is complex and multifaceted.



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What are the participation experiences of students with autism in mainstream school?

Students with autism can experience a range of barriers to their participation in mainstream school. Characteristics of ASD including difficulties with social communication, behaviour and sensory processing can make it difficult for students with autism to:

- establish and maintain friendships;
- play with their peers at recess and lunch;
- regulate their emotions and adapt their behaviour accordingly;
- participate in activities or subjects that are not an area of interest and
- engage in school events or related activities.

While many students experience challenges, students with autism also have many strengths and abilities.

- For example, strengths in:
- visual processing;
 - logical reasoning;
 - attention to detail;
 - understanding and working with rules; and
 - focusing intently and learning a lot about topics of interest.

While many students experience challenges, students with autism also have many strengths and abilities.

Despite increasing research emphasising the importance of incorporating strengths and interests to support students' school participation, there is growing concern about the educational experiences of students with ASD and the impact this has on their social, emotional and academic outcomes^{13, 14, 15}.

Persistent challenges participating at school contributes to students with autism feeling like they do not belong and are not supported in a mainstream environment. A study by Falkner and colleagues² found primary school students with autism perceived their participation in mainstream school to be lower than peers and that they were "more bullied, less liked, less involved in interaction, less understood by teachers and more insecure in the school environment".

compared to peers¹⁶. These challenges make students with autism more vulnerable to bullying, which has serious adverse effects on students including disruptions to educational progress^{17, 18}, reduced self-esteem and social skills¹⁴ and compromises mental health^{15, 16, 17, 19}.

"more bullied, less liked, less involved in interaction, less understood by teachers and more insecure in the school environment compared to peers"

Research shows that when peers are aware of students' diagnosis and have an understanding of autism, they are more accepting and better equipped to support the student by: demonstrating how to complete tasks, correcting students when they behave inappropriately, giving students credit for good ideas and by befriending them^{20, 21}. Studies have shown, however, lack of peer awareness of autism continues to be a significant barrier to the participation and social inclusion of students on the spectrum. With approximately 70% of students on the spectrum being educated in mainstream schools, peer understanding, awareness and acceptance of ASD has never been so important²². Efforts focused on increasing understanding and awareness of differences in the early primary school years are crucial in minimising the long-term documented implications of reduced school participation on student outcomes.

Many programs are available that support students with autism to build skills such as social communication, however these programs or supports are often facilitated by a therapist or involve the students being taken out of the classroom. This is not an inclusive approach and often limits teachers' ability to build their capacity to individualise the curriculum or adopt strategies to support students with autism.

In My Shoes has been designed to be embedded in state and national curriculum, focusing on the importance of peer understanding of autism and their role in supporting students with autism (and all students) to fully participate at school.



Autism Spectrum Disorder (ASD) is a neurodevelopmental disorder characterised by persistent difficulties in social communication and restricted, repetitive patterns of behaviour and interests as diagnosed by the Diagnostic and Statistical Manual of Mental Health Disorders-Version 5¹.

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WHAT IS IN MY SHOES?

In My Shoes is a school based social inclusion program for Year 3 and 4 mainstream classrooms.

What are the aims of In My Shoes?

In My Shoes has been developed based on the challenge's students with autism experience at school but it is anticipated the program will have a positive impact on all students in the class (**not just those with autism**). The intended outcomes for all students are to:

1. Increase understanding and awareness of differences in the way students experience autism and school;
2. Increase self-awareness of strengths and differences and the strengths and differences of peers;
3. Improve confidence in abilities to recognise when someone needs help, how to help others and ask for help at school;
4. Increase feelings of being accepted, respected, included and supported by others in the school social environment; and
5. Improve student interpersonal empathy and use of pro-social behaviours to include peers in the classroom and playground.



In My Shoes - LOOK, THINK, DECIDE

Why is the program called In My Shoes?



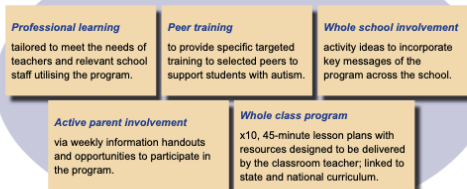
In My Shoes teaches perspective taking and social problem-solving skills by helping students to recognise body clues and how to use these to figure out what someone else might be thinking and feeling, so that they can decide on the best course of action to help peers participate and feel included. Students are asked regularly throughout the program to reflect, using interactive video resources and comic-strip style illustrations, on what they would think or how they would feel if they were in a particular character's shoes.

Perspective taking, is a skill students with autism can find particularly difficult. Additional visual prompts and scaffolding are provided in activity sheets, video resources and accompanying power-point resource to support understanding. **Explicit explanation of the saying in My Shoes is recommended at the start of the program, particularly for students with autism who may take this saying literally.**

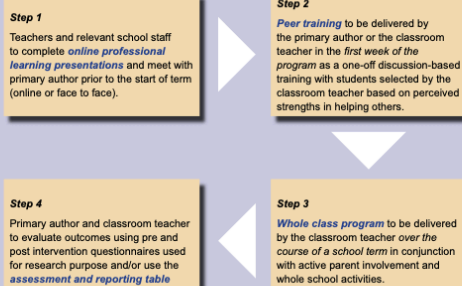
Explain that it does not mean we have to physically put someone else's shoes on, rather it just helps us to think about how we would feel or what we would think if we were them.

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What does *In My Shoes* include?



How is *In My Shoes* delivered?



What are the benefits of using *In My Shoes* over other programs?

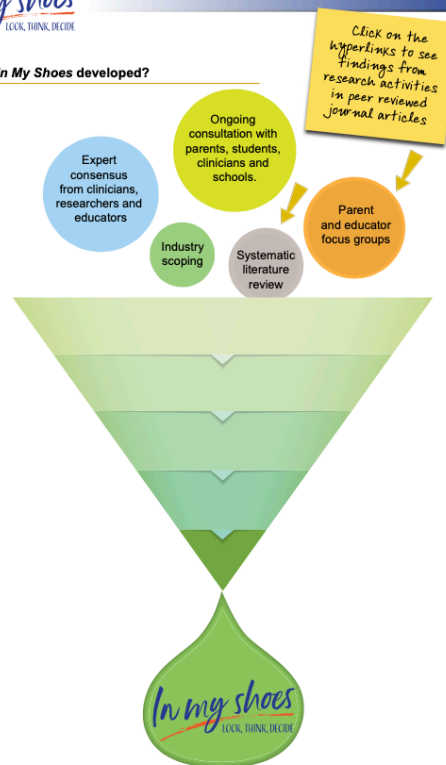
- Based on scientific evidence and linked to theory.
- Autism specific with a focus on supporting strengths and accepting neurodiversity.
- Developed in consultation with key stakeholders, including primary school teachers, senior occupational therapists, senior speech therapists, parents of primary school students with autism, principals and learning support coordinators.
- Embedded in state and national curriculum (not an add on program).
- Designed to be delivered to whole class by the teacher (rather than by allied health professionals using pull out methods).
- Holistic multisystem approach with involvement of parents, classroom and whole school.
- Easy, ready to go online resource.

How does *In My Shoes* complement school curriculum and policy?

- Links to state and national curriculum
- Direct links to the general capabilities of the curriculum.
- Outcomes of *In My Shoes* have links to curriculum areas, particularly health.
- Enhances complimentary initiatives such as pastoral care and buddy programs.
- Contributes towards the development of positive school culture.
- Emphasises the option of a whole school approach in including parents, teachers and students.

Module	General capabilities					ACARA and SCSSA links
	Literacy	Personal & Social Capability	Ethical Understanding	Intercultural Understanding	Critical & Creative Thinking	
1	●	●	●	●	●	ACPPS037
2	●	●	●	●	●	ACPPS037
3	●	●	●	●	●	ACPPS037; ACPPS038
4	●	●	●	●	●	ACPPS037; ACPPS033
5	●	●	●	●	●	ACPPS037; ACPPS038; ACPPS035; ACPPS033; ACPPS034
6	●	●	●	●	●	ACPPS037; ACPPS035; ACPPS038;
7	●	●	●	●	●	ACPPS037; ACPPM048
8	●	●	●	●	●	ACPPS037; ACPPM050; ACPPS038 ACPPS033;
9	●	●	●	●	●	ACPPS037; ACPPS038; SCPMP048; ACPPS033; ACPPS035
10	●	●	●	●	●	ACPPS037

How was *In My Shoes* developed?



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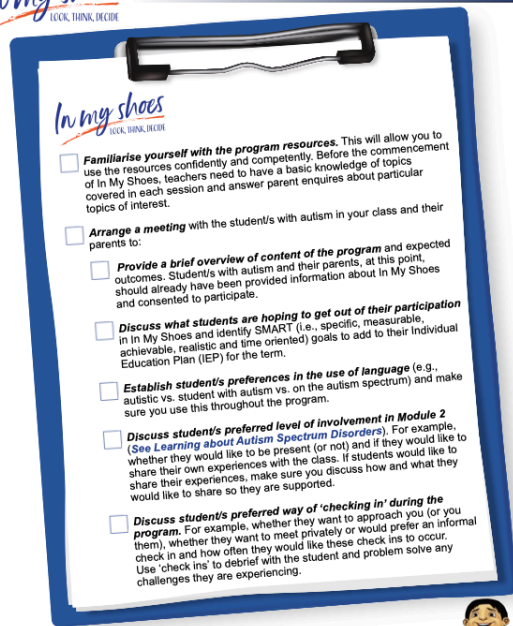
What are solutions to potential challenges to embedding *In My Shoes* into school curriculum?

In My Shoes has been developed based on empirical literature and ongoing consultation with consumers and stakeholders in the field including clinicians, educators,

researchers and parents. Many of the potential challenges associated with *In My Shoes* have already been discussed and are outlined below with potential solutions. If, however, you experience any challenges that are not outlined below, the authors of *In My Shoes* is able to assist you in developing a solution.

What if... ?	Potential solution
There are a lot of student absences	Attempt where possible to provide make up lessons. Use incidental teaching moments to teach and reinforce key concepts.
There are a lot of teacher absences	Authors recommend that other school staff including the learning support coordinator, school psychologist or deputy principal attend professional learning and be actively involved in supporting the classroom teacher implementing <i>In My Shoes</i> . This way, in the event of teacher absences, there is always someone who is able to deliver the program.
Parents express concern about their child's involvement in the program	Authors suggest explaining the potential benefits, (<i>see intended outcomes of In My Shoes</i>), of participating in the <i>In My Shoes</i> program to parents that are expressing concern. Authors also encourage teachers to re-literate that the program is directly linked to state and national curriculum and is content that their child would be covering in health anyway, but with more of a specific focus on supporting their peers to participate and feel included.
We don't complete the program within the term due to unforeseen circumstances e.g., teacher absence, school events	Although not ideal, authors recommend recapping learning to date in the start of the next term and then continuing with the rest of the program in the next term.





It is important to remember every student's experience is unique and their preferences may vary considerably. Therefore, it is vital these conversations have occurred before starting *In My Shoes* so that students (and their parents) feel supported and their outcomes maximised.



PROFESSIONAL LEARNING

How will professional learning be delivered?

Based on feedback from expert clinicians, researchers and educators, the content of the professional learning should ideally be delivered in seven hours, across three sessions, over five days, however this may be logistically difficult for some schools to manage. The frequency and duration of professional learning sessions can therefore be tailored or individualised to suit the need of participating schools (i.e., delivered in one long session or over multiple sessions).

Professional learning content has been previously designed to be delivered face to face in an interactive workshop, so teachers have the opportunity to interact and apply the content of *In My Shoes* to their classroom. However, due to COVID-19, the primary author has adapted professional learning content and converted it into three short online professional learning presentations. These presentations can be watched at a time and place that is convenient to the classroom teacher prior to the commencement of

the program. After the teacher has watched all of the presentations, the primary author will arrange a face to face meeting or via Skype or Zoom to follow up and answer any questions.

Who needs to watch the presentations and attend the follow up meeting?

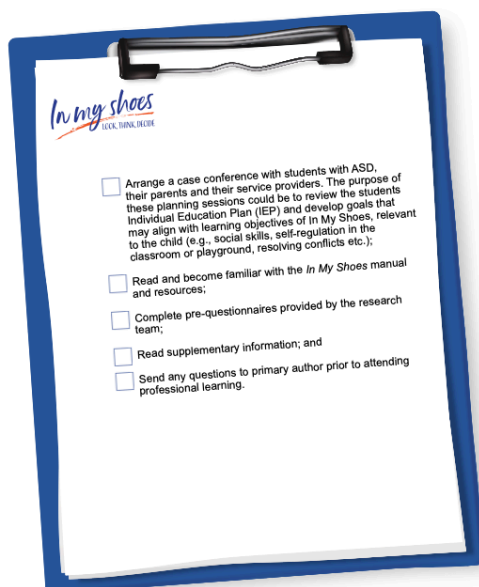
- Classroom teacher;
- classroom education assistant;
- school administration staff that are able to support classroom teacher (e.g., learning support coordinator, deputy principal, school psychologist); and
- the whole school involvement champion (see 'Whole School Involvement' section)

What will it cover?

Please see below for an outline of online professional learning presentations

Introduction ~4 minutes	Session 1 An overview – the journey that led to <i>In My Shoes</i> ~20 minutes	Session 2 Applying <i>In My Shoes</i> to your classroom ~15 minutes	Session 3 A holistic approach – video feedback and modelling, peer involvement, active parent and whole school involvement ~20 minutes
<ul style="list-style-type: none"> • Introductions • Overview of presentations • Use of language • Acknowledgements 	<ul style="list-style-type: none"> • Theoretical background • Overview of classroom modules • Links to curriculum • Application of 'Learning about Autism Spectrum Disorders' (Module 2) 	<ul style="list-style-type: none"> • Meet the characters • Application of Look, Think, Decide (Module 3) • Examples of scaffolding 	<ul style="list-style-type: none"> • Application of video feedback and modelling (Module 5 and 7) • Peer training • Active parent involvement • Whole school involvement • Logistics and troubleshooting

What do I need to do before attending?



PEER TRAINING

What is peer mediated intervention?

Peer mediated intervention is when peers or classmates are taught how to support student learning and can include:

- modelling expected behaviour or skills (e.g., asking to join in a game);
- prompting the student (e.g., using words, gestures or visuals);
- reinforcing expected behaviours (e.g., "good job for waiting your turn")²¹.

Peer involvement in interventions can play a critical role in making inclusion happen, promoting social interactions and friendships, and creating communities where all students help each other learn²⁴

What are the benefits of peer involvement in interventions?

Peer involvement in interventions can play a critical role in making inclusion happen, promoting social interactions and friendships, and creating communities where all students help each other learn²⁴. Peer involvement allows interventions to be delivered in a child's natural environment (e.g., home or school), which:

- provides ongoing opportunities for students to interact and practise their social skills increasing intervention time^{25, 26};
- increases the likelihood students will generalise skills across settings^{26, 27}; and
- fosters positive peer relationships through interaction with selected peers.

Research shows that peer mediated intervention is particularly beneficial for students with autism with reported benefits including:

- increased on-task behaviour²⁸;
- improved social skills such as turn taking²⁹;
- a reduction in solitary play in the playground³⁰; and
- higher peer acceptance³¹.

There are also reported benefits for selected peers including:

- increased academic engagement and classroom participation;
- improved social skills;
- improved interpersonal empathy; and
- increased acceptance of ASD^{32, 33}.



What do peers do in, *In My Shoes*?

In My Shoes is a whole class program that aims to teach all students to be natural peer mentors but there is an additional component to the program that involves training selected peers to be 'inclusion champions' (or whatever term you prefer to use) and provide additional support to students in the classroom and playground.

The classroom teacher will be asked to carefully select 3 to 4 students in their class who:

- consistently attend;
- have a history of being reliable and responsible;
- may be interested and willing to help;

- have strong social and interpersonal skills; and
- have similar interests to target students

Students who are selected will be provided with a **short informal discussion-based training with the primary author or the classroom teacher (whichever is preferred) in the first week of the program**. The content of this training will focus on what it looks like, feels like and sounds like when someone looks lonely in the playground or like they are having difficulty in the classroom, and what they could do to help in these situations. The training will draw on student's previous experience and help to highlight ways they may be able to help their peers in the classroom and playground.

Please note, it is important to remember that selected peers are friends, role models, guides and above all peers. They are not teachers, disciplinary figures, instructional assistants, behaviour modifiers or supervisors.



"Pokemon Monday", "wear red Tuesday", "what's your passion Wednesday?", "neurodiversity Thursday" or "sensory friendly Friday".

- Ask students to elect **champions or leaders** to facilitate **inclusion** in different areas of the school. For example:
 - playground champions could come up with lunch time activity ideas and help organise or facilitate them or they could watch out for any students sitting on the buddy bench that might need someone to talk to or someone to play with.
- An extra-curricular champion could promote involvement in range of extra-curricular activities and identify any new potential clubs (e.g., Lego, Minecraft) that might cater to a wide variety of interests.



Keep in mind when preparing for Autism Acceptance activities that awareness is not enough, it is just a step in the right direction

Who could be responsible for facilitating whole school involvement?

This is completely dependent on the school's preferences and staff workloads, however our consumer and stakeholder reference group recommend school staff best placed to organise and facilitate activities may include:

- principal;
- deputy principal;
- learning support coordinator; and/or
- school psychologist.

We recommend that the school assign one 'champion' to lead whole school involvement and have additional staff members allocated to support and to spread the workload. The staff member assigned as the champion should attend professional learning and be in close collaboration with the implementing teacher.

Please use the 'How can our school get involved in *In My Shoes*?' checklist to help facilitate conversation about whole school involvement in the program.



WHOLE SCHOOL INVOLVEMENT

Why is whole school involvement important?

A whole school approach recognises that all aspects of the school community can impact positively upon student's health, safety and wellbeing. A comprehensive whole school approach is widely recognised as best practice in working holistically to promote student health and wellbeing". By adopting this approach schools can increase engagement with the school community and are more likely to secure sustainable improvements.

The content of *In My Shoes* is specifically targeted at Year 3 and 4 classrooms however, the key messages of the program are beneficial for all students and staff to understand. While not a mandatory aspect of the program, we strongly recommend that schools try to incorporate at least a few of the below activities as a whole school focus. These efforts will not only positively impact students with autism, but all students. Specific whole school activity ideas that align with key messages of classroom modules are detailed in each module as well as listed below.

What could this involve?

- **Include key messages** in assembly items facilitated either by students or school staff. Example themes for assemblies listed below:
 - **School belonging** – what makes you feel like you belong at school? what are ways that we can help everyone feel they belong at school?
 - **Neurodiversity** – what is neurodiversity and what are some of the benefits of having a neuro-diverse school community?
 - **Look, Think, Decide** – explain the key concept of the program using provided video resources or ask students to role play a common social situation and apply the concept 'in the moment' for other students to observe.
 - **Autism acceptance** – provide some information about the strengths and differences of students with ASD and/or share the perspectives of real-life students with autism using **video resource provided**.
- Ask some staff members to complete **citizen profiles from Module 1** and display them around the school so that students can learn about the strengths and differences of their teachers.
- Include **inserts in school newsletters** about key messages of the program. Example themes for newsletter inserts could include the importance of

- school belonging and ways to promote a sense of belonging at school, the term neurodiversity and benefits of having a neuro-diverse school community, autism acceptance and the concept of Look, Think, Decide (**example provided**)
- Organise an autism acceptance or neurodiversity **morning tea**.
- Display positive statements or affirmations about difference and acceptance around the school (**Click here for some sample posters**). Some affirmations are autism specific, and others are more general; an example of a whole school approach that will promote acceptance for all students (not just those with autism).
- Create a **book area in the library** about neurodiversity, difference or autism. (**Click here to see recommended books**).
- Create a welcoming space and help foster friendship by adding a **buddy bench** to your playground area. Students who feel alone or in need of a friend quickly learn it is a great place to meet up with others and make new friends.
- Create a **Kindness Tree** in the school grounds where students can record kindness given, received and witnessed throughout the school and see how their good deeds grow.
- Plan an **Autism Acceptance Spirit Week** with activities planned for each day of the week such as

HOW WILL OUR SCHOOL GET INVOLVED IN IN MY SHOES?

Our whole school involvement champions are:

What activity?	When will it happen?	Who will help?
Assembly items, topics:		
School newsletter inserts, topics:		
Autism acceptance morning tea		
Neurodiversity morning tea		
Kindness tree		
Buddy bench		
Inclusion champions		
Library space about neurodiversity, difference and/or autism		

What resources do I need?

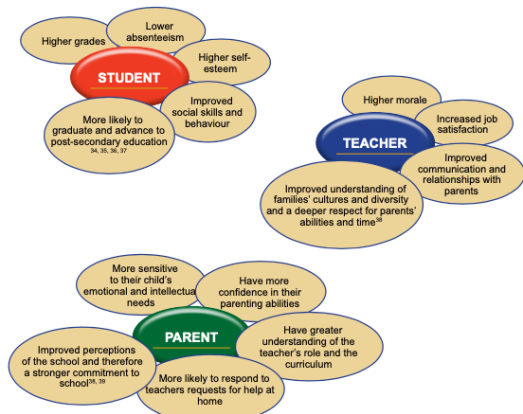
ACTIVE PARENT INVOLVEMENT

Although *In My Shoes* has been developed to specifically support students with ASD at school, it is a whole class program that has potential benefits for all students in the class. Therefore, it is important that all parents (not just those who have a child with ASD) have been provided with information about the program and encouraged to facilitate home discussion to support their child's learning.

Why is active parent involvement important?

Research shows that parent engagement in schools has positive outcomes not only for students, but also for teachers and parents themselves.

Benefits to students, teachers and parents



How does In My Shoes involve parents?

- ✓ **Parent information session (optional)** - the primary author is available to facilitate an online information session for parents interested in learning more about *In My Shoes*, ASD and how to support generalisation of skills at home. This session will be available to parents prior to the start of the program. Parents can register their interest with the primary author directly via email.
- ✓ **Parent information handouts** - teachers are encouraged to send parents information handouts prior to implementing each module in the classroom. These handouts explain the content of each module and provides ideas of ways to generalise learning at home.
- ✓ **Invitation to participate in Module 10** - this is the last module of the program that celebrates students learning and achievements. Parents are encouraged to help students to develop a short presentation for the class of the things they have learnt from *In My Shoes* and have a party at the end.
- ✓ **Invitation to participate in other classroom and whole school activities** - this is dependent on the activities that the school chooses to implement (see whole school involvement)

How can we facilitate and maintain positive relationships with parents?

Evidence suggests that strategies to involve parents have the greatest impact when there are consistent, positive relationships between the school and parents³⁹. Some ways schools can further promote positive relationships with parents, when a new program is introduced, may include:

- Establishing a strong communication system with parents from the start - for example, sending out information letters about *In My Shoes* prior to the start of term; sending weekly information handouts about module content and ways parents can generalise learning at home (parent information handouts are available in resource folder in USB provided).
- Regularly checking in with parents about their understanding of the parent information handouts and/or providing regular feedback about their

child's involvement in *In My Shoes* and their achievements via email or in person.

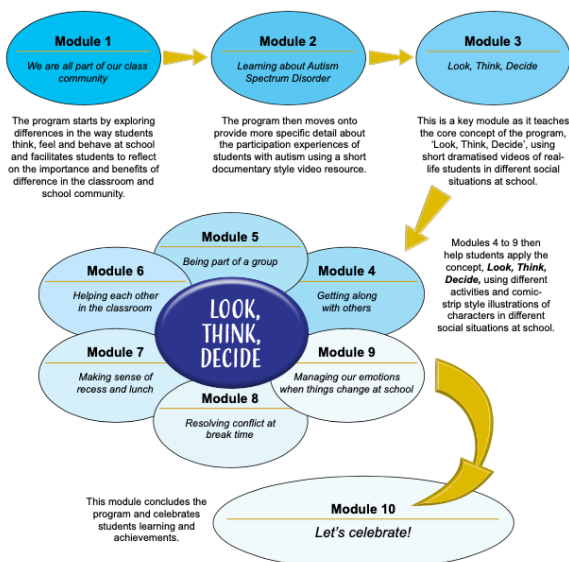
- Hosting small group meetings with parents to get feedback about *In My Shoes*, but also more broadly about how they feel the school supports their child to participate and feel connected by asking questions such as "what are we doing well?" and "where do we need to improve?".
- Sharing school experiences with parents with a focus on the positives - for example, their child's involvement in a classroom or school related activity or an example of how their child supported a peer in the classroom or playground.
- Inviting parents to participate in or attend classroom or school events - for example, an autism acceptance morning tea or neurodiversity assembly item.

Educators who form partnerships with parents are among the most successful in their work with children. Why? Because when parents and teachers work together, children receive consistent messages about the value of an education, and they feel supported and encouraged in their pursuits⁴⁰.



WHOLE CLASS PROGRAM

Overview of modules



Look, Think, Decide

Look, Think, Decide, is a social problem-solving tool that teaches students to take the perspective of others with the aim of taking action to help others to participate and/or to feel more included at school. Throughout the program, students learn to:

- recognise specific body clues in others (e.g., facial expressions, body language, tone of voice, actions);
- use these to identify what someone might be thinking and how they might be feeling; and
- decide on the most appropriate course of action based on perceived consequences. Throughout the module's students practise applying this concept in a range of activities using comic-strip style illustrations and video resources.

Perspective taking is a skill that can be particularly difficult for students with autism. Additional scaffolding is provided in activity sheets and the PowerPoint resource to support students learning. For example, providing fixed choices for students to choose from when working through the steps of Look, Think, Decide. Evidence based intervention techniques are incorporated throughout classroom modules including role play, video modelling and peer mediation to deliver the content in a fun and engaging way.

A CORE CONCEPT OF THE PROGRAM



What can I see?

e.g., facial expressions, body language, actions, tone of voice.

What does it mean?

e.g., what might the person be thinking? how might they be feeling?

What can I do?

e.g., what action could I take? what might be the consequences?

Meet the characters

The characters of *In My Shoes* have been developed to represent neuro-diversities commonly present in the classroom. Each character has their own unique personality – likes, dislikes, strengths and challenges. Throughout the program, each character features in a comic-strip style illustration where they are presented with an activity, task or situation they find difficult (e.g., concentrating in class or joining in a game). Each character has an opportunity to use their strengths to help another character so that everyone can participate and feel included.



Anthony

Anthony is hard working, reliable and clever. He sometimes has difficulty understanding other people's point of view. He always tries his best and does not like to let other people down.

**Anthony meets the diagnostic criteria for ASD. This is not explicitly stated in the program as it focuses on strengths and differences however teachers are encouraged to use this as a discussion point in Module 2.*

- At school, I like - playing four square, talking to my friends about Lego, knowing the rules and what is going to happen next.
- At school, I don't like - when things change, or people don't follow the rules, when things are disorganised or if we are running late.
- My favourite subject - maths and science.
- My least favourite subject - English, especially creative writing.
- Things I am involved in, at school - after school Lego club.
- Things I am good at, at school - science experiments, following instructions.
- Things I find hard, at school - staying calm, particularly when things change, talking to other people's ideas in group work or when we play.
- Things that help me at school - routine and structure, help to stay calm in situations that make me angry, more information about things like excursions or relief teachers.



Bobby

Bobby has lots of energy which he often channels by moving around a lot in class and in the playground. He is always willing to give everything a go and is good at telling jokes.

- At school, I like - playing sport, particularly soccer and four square; being outside at recess and lunch; telling jokes.
- At school, I don't like - sitting still.
- My favourite subject - physical education.
- My least favourite subject - maths and science.
- Things I am involved in, at school - extra-curricular soccer, cricket and swimming.
- Things I am good at - sport; getting involved in classroom activities.
- Things I find hard, at school - getting my work done in class as sometimes it is hard; focusing in class as I have a lot of energy.
- Things that help me at school - help me to stay on task in class; let me have a quick break every now and then to burn some energy.



Charlotte

Charlotte is creative and has a good imagination. She always thinks about others and is very calm. Charlotte can sometimes find it hard to focus and often daydreams which can make her late to class or to start an activity.

- At school, I like - drawing, making up elaborate stories to share with my friends or write in English class.
- At school, I don't like - doing the same thing for a long time; subjects where there is a right and wrong answer.
- My favourite subject - art, English and music.
- My least favourite subject - maths and science.
- At school, I am involved in - choir, after school art club.
- Things I am good at, at school - being creative, coming up with ideas, listening to others.
- Things that I find hard, at school - keeping my desk organised; staying focused in class as I often daydream.
- Things that I find help me at school - redirect to stay on task; write things down so I remember them.



Danielle

Danielle is gentle and quiet. She can be sensitive to loud noises and prefers quiet activities like reading.

- At school, I like - reading; learning about history.
- At school, I don't like - the loud crowded corridors in between classes; when people have fights or disagreements at school.
- My favourite subject - history.
- My least favourite subject - physical education, drama and music.
- At school, I am involved in - after school reading group, librarian helper.
- Things I am good at, at school - concentrating for long periods, particularly on things I like, like history; seeing the details.
- Things that I find hard at school - going to assembly or sports carnivals, or other places that are noisy; group work and conflict situations.
- Things that I find help me at school - give me options to take a break or use headphones or ear plugs in noisy places; using a calm voice.



Elliot

Elliot has an upbeat positive attitude; he is always optimistic and has a strong sense of fun. He is friendly and involved in a lot of leadership at school.

- At school, I like - playing with my friends; sharing or trading my lunch with my friends; listening to music.
- At school, I don't like - when other people are in bad moods.
- My favourite subject - I like all subjects but especially English and drama.
- My least favourite subject - I don't have one!
- At school, I am involved in - class captain, drama fest.
- Things I am good at, at school - being friendly and including others; staying positive and persisting when things are hard.
- Things that I find hard at school - knowing when people have had enough of my bubbly attitude!

CLASSROOM MODULES

The following sections outline classroom modules and include structured lesson plans, activity sheets and relevant resources.

Each module contains -

- specific learning objectives for each lesson;
- specific links to state and national curriculum;
- suggestions for assessment reporting requirements;
- structured teaching of the new core concept or skill and related activity (e.g., game, role play, written exercise, discussion or video);
- ideas of ways to scaffold activities and incidentally teach content throughout the school week;
- parent information handout.

Structured lesson plans have been designed to be a minimum of **45-minutes in length**, however this may vary depending on the depth of whole class discussion as well as teachers' preferences and style in the way the content is delivered. You may choose to dedicate more than 45 minutes a week to lesson content.

Example scripts have been included to demonstrate how teachers can introduce skills and concepts to students. They are used as a guide only. Teachers are able to apply their own style, skills and knowledge to present program content in a way that is engaging for students. This will be influenced by the unique needs and preferences of each child and parent group.

Classroom modules have been designed to be delivered alongside a PowerPoint resource on the smart board to provide additional visual supports and to scaffold activities.

How are characters the SAME and DIFFERENT?



Powerpoint presentation available in Other Resources folder on the USB provided

What would it be like at school, if we were all the SAME?

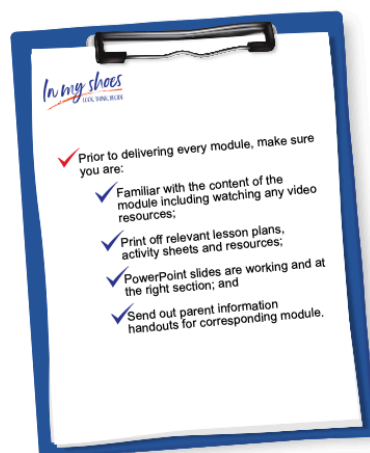


Being different is AWESOME!

Glossary of icons

Throughout the lesson plans you will see the following icons:

	Individual work		Whole class discussion
	Small group activity		Time allocated



Appendix H3: Example Whole Lesson Plan with Associated Parent Information

Handout and Resources



MODULE ONE

WE ARE ALL PART OF OUR CLASS COMMUNITY



"We all have strengths and differences and we all have the power to make others feel included"

At the end of this module, students will be learning to:

- Understand that every class member is different in the way they think, feel and behave at school;
- Reflect on the importance and benefits of difference in the classroom and school community;
- Build understanding of individual strengths and differences and compare these with peers;
- Celebrate individual student differences and reflect how each student adds value to the classroom; and
- Identify behaviours that make classmates feel included, accepted and valued for their differences.

Links to curriculum	Assessment and reporting
General capabilities	Recommended observations <ul style="list-style-type: none"> • Contribution to classroom discussion • Interaction with peers during paired activities. Formal assessment: <ul style="list-style-type: none"> • Completed class citizen profile (identify at least one strength and one difference)
Australian curriculum <ul style="list-style-type: none"> □ ACPPS037 – Describe how respect, empathy and valuing diversity can positively influence relationships. State Curriculum School Authority <ul style="list-style-type: none"> □ ACPPS037, Year 3 – Behaviours that show empathy and respect for others. □ ACPPS037, Year 4 – The positive influence of respect, empathy and the valuing of differences in relationships. 	Resources required <ul style="list-style-type: none"> • Power-point slides to be displayed on smart/white board. • Printed class citizen profile worksheet • Printed class citizen profile example template • Printed character profiles to display around the classroom • Printed photograph of students in the class either taken at school or brought in from home (optional as students can choose to draw a picture of themselves instead)



LESSON PLAN

WE ARE ALL PART OF OUR CLASS COMMUNITY



INTRODUCTORY ACTIVITY



Introduce In My Shoes and the characters

• **Slide 1 to 2** – "Over the course of the term, we are going to be completing a program called *In My Shoes*, which will help us learn how to take other people's perspectives at school that might be finding something difficult and come up with ways that we can help to make sure everyone feels accepted, respected and included at school. Today we will meet the characters of *In My Shoes* and learn about their similarities and differences. Over the course of the program, we will see the characters in different situations at school and be doing some fun activities using comic-strips! The title of the program is called *In My Shoes* because when we take another person's perspective, we often have to think about what it would be like if we were them by putting ourselves in their shoes. We have to try and think about what they may be thinking and how they may be feeling. It doesn't mean we have to physically put their shoes on, more just think about what it would be like if we were in them"



• **Slide 3 to 7** – Introduce the characters of *In My Shoes* using character profiles on the PowerPoint slide on the smart/white board, augmented with audio. As each character is being introduced, use reflective questioning to help students identify or relate with the characters (e.g., "I wonder if anyone else likes playing outdoor sports like Bobby?").

• **Slide 8** – Reflect that, just like you and I, all of the characters of *In My Shoes* have similarities and differences – not only in the way they look, but in what they like to do and how they think about things at school. Briefly ask students to identify a couple of examples of how characters are the same and different (image of characters on power-point resource will provide explicit clues for students to draw on; e.g., Bobby and Elliot have a like playing four square at lunch time whereas Charlotte and Danielle prefer quieter activities like drawing and reading).



• **Slide 9** – Show students power-point slide of characters standing next to each other, without colour or expression. Emphasise that being different is not a bad thing and that we can all learn to understand and accept each other's differences at school. Ask students:

- what would it be like at school, if we were all the same? (e.g., it would be boring, it wouldn't be any fun, we wouldn't learn anything new).
- what are some of the good things about going to school with many people who are different? (e.g., we learn new things, we have fun).



In My Shoes - LOOK, THINK, DECIDE

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MAIN ACTIVITY



Class Citizen Profile

• **Slide 10** – Explain to students that we are going to learn more about our own strengths and differences by making our own class citizen profile, similar to the character profiles from *In My Shoes*.

• **Slide 11** – Show the class a **template of the class profile**. Teacher to emphasise that there are many things that students can like or be good at, at school – not just academic subjects. For example, some students are good at making friends, organising their belongings, coming up with ideas and trying their best. Teacher to adapt level of scaffolding for this activity as required depending on the needs of students in their class. For example, brainstorm responses to specific parts of the class profile using the example template as a prompt or (using discretion) give specific examples of responses students could write on their profile based on teachers observations of their strengths and differences (e.g., "I know that Jessica is really good at remembering facts about the Titanic, so this is something that she could write on her profile under 'something special about me'"). Teacher to encourage students to present information on their class profile in the way they feel most comfortable (e.g., write or draw etc.).

Ask students to share their profile with the peer they are sitting next to and identify one similarity and one difference in their profiles. Ask a few students to share one similarity and one difference they have learnt about a peer with the class. Reflect on similarities and differences identified and highlight how student differences add value to the classroom (e.g., "how boring would our class be if we didn't have someone who could ..."). Display class profiles in the classroom and encourage students to add to their profile over the course of the term.



CLOSING ACTIVITY



Looks Like, Feels Like, Sounds Like

• **Slide 12** – Reflect that sometimes because people are different, they can be treated differently at school (e.g., they might not be invited to play, people might say hurtful things about them to their face or behind their back). Ask students to brainstorm what they think it "looks like, feels like and sounds like" to be included at school. Write student responses on the power-point slide on the smart/white board. Example responses outlined below:

Looks like	Feels like	Sounds like
<ul style="list-style-type: none"> • Invite someone to play • Let other people play or join in a game • Show someone how to play a game • Ask someone if they need help • Help someone • Include others • Share with others 	<ul style="list-style-type: none"> • Happy • Safe • Included • Supported 	<ul style="list-style-type: none"> • Say nice things about you or to you • Having fun - giggling, laughing

"If students say something like, 'not being mean', ask students to unpack what this actually looks like, so that specific responses are identified and worded in a positive light."

In My Shoes - LOOK, THINK, DECIDE

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• **Slide 13** – Ask students to identify one thing they could say or do to make someone feel included at school. Write down students' responses on the PowerPoint slide on the smart/white board. As appropriate, link students' responses to pre-existing classroom expectations or school values (e.g., if a student says, "you could invite them to play at recess or lunch", link this to an appropriate classroom expectation or a school value such as integrity). Print this slide out with students' responses and present visually in the classroom for future reference. Emphasise at this point, that it is everyone's responsibility to make others feel included at school.



Scaffolding and modification

- Option to modify class citizen profile worksheet (e.g., example responses that students can cut and paste; reduced number of boxes in profile that student needs to fill in, making sure they prioritise identifying one thing they are good at and one thing that is different about them)

Incidental teaching opportunities

- Recognise and label students' strengths and interests openly and encourage them to add them to their class profile.
- Print out or refer to positive affirmations or quotes about difference and acceptance during the week (e.g., during morning meeting or before leaving the classroom at the end of the day).

Whole school involvement

- **Present positive affirmations or quotes** about difference and acceptance around the school grounds.
- Set up a kindness tree (or similar) in the classroom or on the school grounds where students can put notes saying something nice about their classmates, teachers or school.



In My Shoes - LOOK, THINK, DECIDE

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MODULE ONE

WE ARE ALL PART OF OUR CLASS COMMUNITY



ACTIVITY SHEETS AND RESOURCES

's Class Citizen Profile

At School, I DON'T LIKE

At School, I LIKE

FAVOURITE subject

LEAST FAVOURITE subject

At school I am GOOD at

Things I am involved in

Things I find HARD at school

Draw a picture of yourself OR paste in a photo

Things that HELP me at school

I am an important member of our class

INFORMATION FOR PARENTS

WE ARE ALL PART OF OUR CLASS COMMUNITY



As you are aware, your child's classroom has started a program called *In My Shoes*, which will run for the duration of this term.

In module 1 your child is learning to:

- understand that every class member is different in the way they think, feel and behave at school;
- reflect on the importance and benefits of difference in the classroom and school community;
- build understanding of individual strengths and differences and compare these with peers;
- celebrate individual student differences and reflect how each student adds value to the classroom; and
- identify behaviours that make classmates feel included, accepted and valued for their differences.

Your child will be introduced to characters of *In My Shoes* (character profiles attached) and identify their own strengths and differences using a class citizen profile (class citizen template attached).

This activity will help your child to build their self-awareness and develop connections with their peers based on perceived strengths and differences.

This is important as children who are more self-aware and feel more connected at school are more likely to get better test scores, have higher test scores, stay in school longer and attend school more regularly. There are also long-term positive implications for their social and emotional development.

How can you help generalise learning at home?

- Ask your child to share information from their profile with you.
- Ask your child which character they relate with the most and why.
- Help students add to their profile by identifying strengths that they might have missed (e.g., "I've noticed that you're really good at ...").

- Explicitly talk about strengths and differences of your child and members of the family.
- Identify ways that family members are the same and different.
- Come up with a family slogan about difference and acceptance!
- If you have any questions about the content of the module or ways that you can help to support your child's learning at home, please contact your classroom teacher.

At School, I DON'T LIKE

At School, I LIKE

FAVOURITE subject

LEAST FAVOURITE subject

At school I am GOOD at

Things I am involved in

Things I find HARD at school

Draw a picture of yourself OR paste in a photo

Things that HELP me at school

CHARACTER PROFILES

Anthony

Anthony is hard working, reliable and clever. He sometimes has difficulty understanding other people's point of view. He always tries his best and does not like to let other people down.

- At school, I like – playing four square, talking to my friends about Lego, knowing the rules and what is going to happen next.
- At school, I don't like – when things change, or people don't follow the rules, when things are disorganised or if we are running late.
- My favourite subject – maths and science
- My least favourite subject – English, especially creative writing.
- Things I am involved in, at school –

- after school Lego club.
- Things I am good at, at school – science experiments, following instructions.
- Things I find hard, at school – staying calm, particularly when things change; taking on other people's ideas in group work or when we play.
- Things that help me at school – routine and structure; help to stay calm in situations that make me angry; more information about things like excursions or relief teachers.

Bobby

Bobby has lots of energy which he often channels by moving around a lot in class and in the playground. He is always willing to give everything a go and is good at telling jokes.

- At school, I like – playing sport, particularly soccer and four square; being outside at recess and lunch; telling jokes.
- At school, I don't like – sitting still
- My favourite subject – physical education.
- My least favourite subject – maths and science.
- Things I am involved in, at school – extra-curricular soccer, cricket and

- swimming.
- Things I am good at – sport; getting involved in classroom activities.
- Things I find hard, at school – getting my work done in class as sometimes it is hard; focusing in class as I have a lot of energy.
- Things that help me at school – help me to stay on task in class; let me have a quick break every now and then to burn some energy.

Charlotte

Charlotte is creative and has a good imagination. She always thinks about others and is very calm. Charlotte can sometimes find it hard to focus and often daydreams which can make her late to class or to start an activity.

- At school, I like – drawing; making up elaborate stories to share with my friends or write in English class.
- At school, I don't like – doing the same thing for a long time; subjects where there is a right and wrong answer.
- My favourite subject – art, English and music.
- My least favourite subject – maths and science.

- At school, I am involved in – choir; after school art club.
- Things I am good at, at school – being creative; coming up with ideas; listening to others.
- Things that I find hard, at school – keeping my desk organised; staying focused in class as I often daydream.
- Things that I find help me at school – directed to stay on task; write things down so I remember them.

Danielle

Danielle is gentle and quiet. She can be sensitive to loud noises and prefers quiet activities like reading.

- At school, I like – reading; learning about history.
- At school, I don't like – the loud crowded corridors in between classes; when people have fights or disagreements at school.
- My favourite subject – history.
- My least favourite subject – physical education, drama and music.
- At school, I am involved in – after school reading group, librarian helper.

- Things I am good at, at school – concentrating for long periods, particularly on things I like, like history; seeing the details.
- Things that I find hard at school – going to assembly or sports carnivals, or other places that are noisy; group work and conflict situations.
- Things that I find help me at school – give me options to take a break or use headphones or ear plugs in noisy classes; using a calm voice.

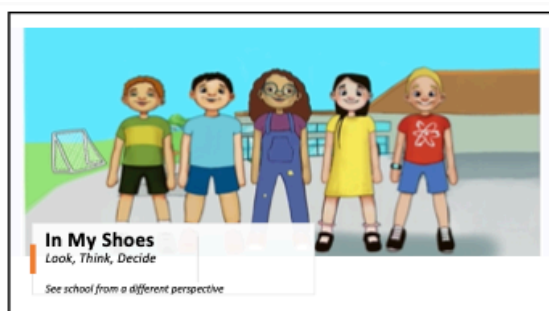
Elliot

Elliot has an upbeat positive attitude. He is always optimistic and has a strong sense of fun. He is friendly and involved in a lot of leadership at school.

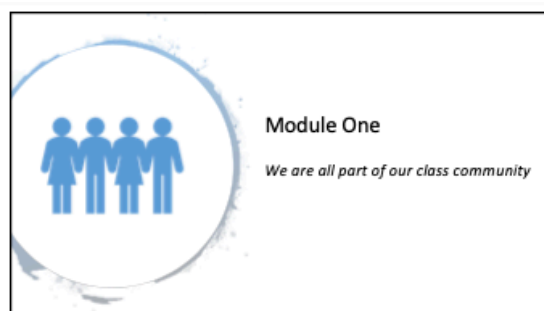
- At school, I like – playing with my friends; sharing or trading my lunch with my friends; listening to music.
- At school, I don't like – when other people are in bad moods.
- My favourite subject – I like all subjects but especially English and drama.
- My least favourite subject – I don't have one!

- At school, I am involved in – class captain, prefect.
- Things I am good at, at school – being friendly and including others, staying positive and persisting when things are hard.
- Things that I find hard at school – knowing when people have had enough of my bubbly attitude!

Appendix H4: Power-Point Presentation to use Alongside *In My Shoes* Lesson Plans



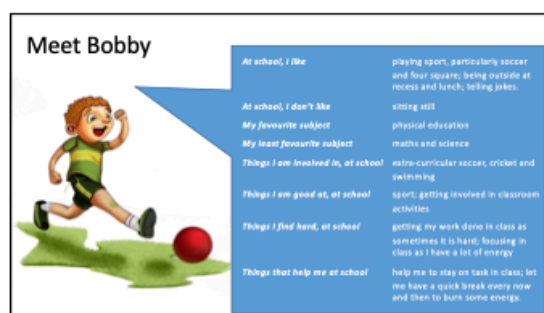
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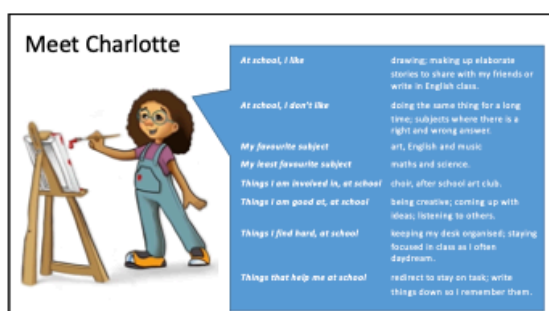
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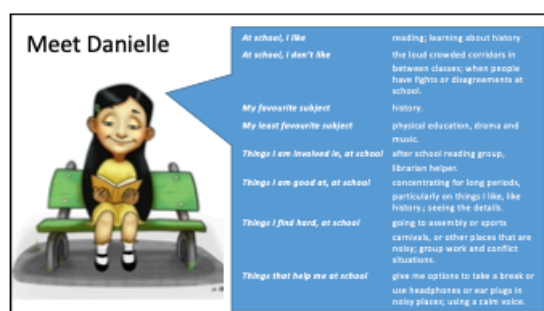
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4




5



6

Meet Elliot



At school, I like	playing with my friends; sharing or trading my lunch with my friends; listening to music.
At school, I don't like	when other people are in bad moods.
My favourite subject	I like all subjects but especially English and drama.
My least favourite subject	I don't have one!
Things I am involved in, at school	class captain, dramatist.
Things I am good at, at school	being friendly and including others, staying positive and persisting when things are hard.
Things I find hard, at school	knowing when people have had enough of my bubbly attitude!
Things that help me at school	knowing when people have had enough of my bubbly attitude!

7

How are characters the SAME and DIFFERENT?



8

What would it be like at school, if we were all the SAME?



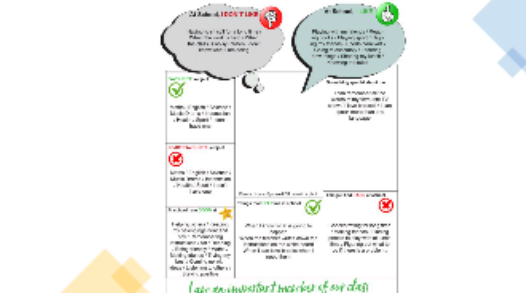
Being different is **AWESOME!**

9

Let's make our own class citizen profile!

- **Step 1.** Complete class profile (write it, draw it, type it!)
- **Step 2.** Share with a peer and identify:
 - 1 thing that is **SIMILAR**
 - 1 thing that is **DIFFERENT**
- **Step 3.** Share with the class

10



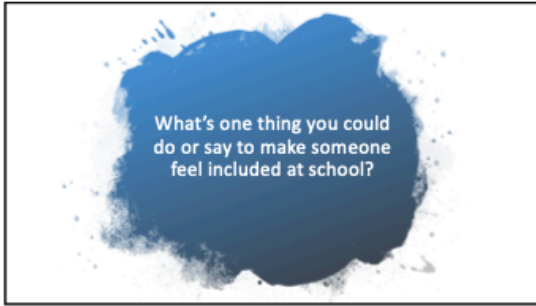
I am an important member of my class

11

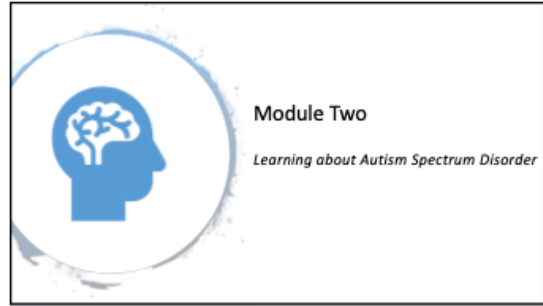
When we are included at school

LOOK LIKE	FEELS LIKE	SOUNDS LIKE

12



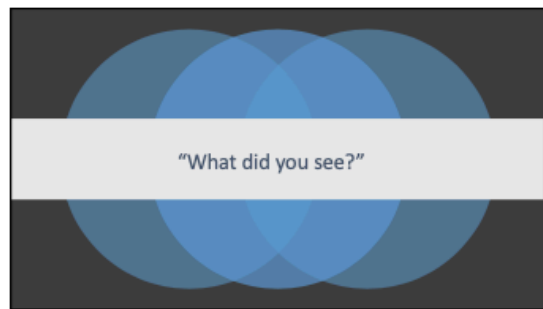
13



14



15



16



17

We all SEE the same picture, but we THINK about it in different ways and that's OK!

Learning
about
Autism
Spectrum
Disorder

	Please circle	
	True	False
Children with autism think differently	<input type="text"/>	<input type="text"/>
Being in crowded places can make children with autism feel nervous	<input type="text"/>	<input type="text"/>
Children with autism do not want to make friends	<input type="text"/>	<input type="text"/>
Understanding other people's feelings can be hard for children with autism	<input type="text"/>	<input type="text"/>
All children with autism are good at math	<input type="text"/>	<input type="text"/>
All children with autism want to be left alone all the time	<input type="text"/>	<input type="text"/>
Children with autism sometimes need help to stay calm at school	<input type="text"/>	<input type="text"/>
Only boys have autism	<input type="text"/>	<input type="text"/>

18



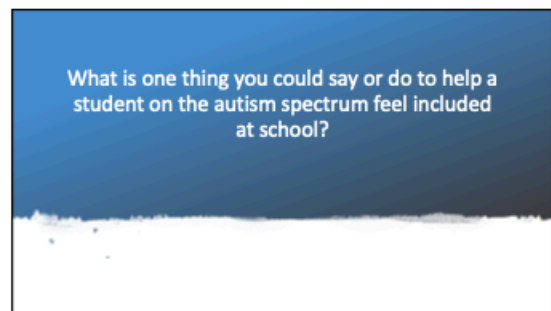
19



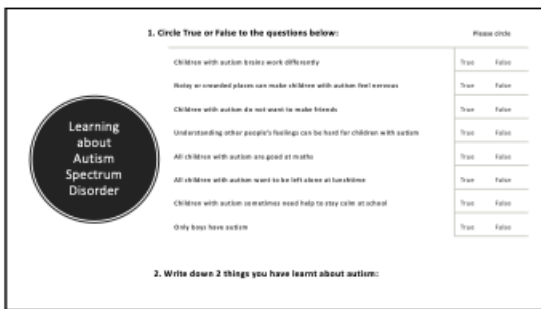
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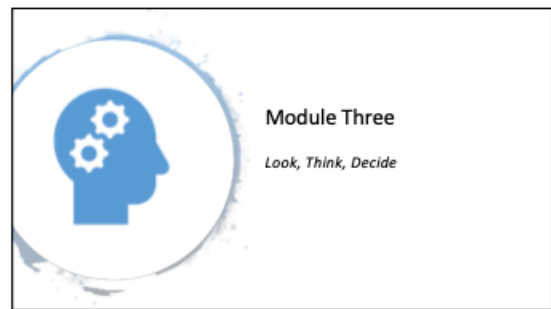
21



22



23



24

What do you think when you find something hard or do not know what to do?

I can't do it!

This is too hard!

I want to give up!

Everyone else is so much better at this than me..!

25

How do you feel when you find something hard?

NERVOUS FRUSTRATED ANGRY SAD EMBARRASSED BORED STRESSED

26

What happens to your body when you find something hard?

eyes eyebrows mouth shoulders arms hands heart stomach legs knees feet

27



28

LOOK What can I see?	THINK What does it mean?	DECIDE What can I do?
e.g., what is [insert name of student] doing with his/her body, face, voice etc.,?	e.g., what might [insert name of student] be thinking? how might he/she be feeling?	e.g., what could [insert name of student] say? what could [insert name of student] do? what might be the consequences?

29

Danielle and Elliot go to assembly

HAPPY SAD STRESSED ANGRY CALM

30

LOOK What can I see?	THINK What does it mean?	DECIDE What can I do?

31

Science class is cancelled

FRUSTRATED ANGRY SAD EMBARRASSED BORED

32

LOOK What can I see?	THINK What does it mean?	DECIDE What can I do?

33

Module Four
Getting along with others

34

Anthony and Charlotte having a conversation

35

When conversations go well

LOOK LIKE	FEELS LIKE	SOUNDS LIKE

36



37

Activity – Let's have a conversation!

- Find a classmate you do not know very well
- One person to choose a topic of conversation from the board and start the conversation
- Practice expected behaviours during the conversation to learn about your classmate!
- Give feedback to your classmate:
 - 1 thing they did well
 - 1 thing to try differently next time

38

My Conversation Checklist

Greet the person	
Ask a question	
Make a statement	
Actively listen by nodding	
End the conversation	

Remember to:

- Stay on topic
- Be an active listener
- Subtly smile
- Give positive feedback
- Give positive feedback

Remember to use your conversation checklist as needed!

39

Topics of conversation!

Favourite subject

Favourite time of day at school

After school activities

40

Feedback to the class

Who did you have
a conversation
with?

What did you
learn about
them?

41

Module Five

Being part of a group

42

Marshmallow Challenge



20 sticks of spaghetti 1 marshmallow 1 meter of string 1 meter of sticky tape 1 measuring tape

Rules:

- Your challenge is to build the tallest, freestanding structure using the materials listed above.
- The winning team is one that builds the tallest freestanding structure measured from the tabletop surface to the top of the marshmallow.
- The team's structure must stand on its own for measuring. Teams touching or supporting their structure will be disqualified.
- Teams can use as much or as little of the 20 sticks of spaghetti, tape and string provided.
- The entire marshmallow must be on top of your structure. Cutting or eating part of the marshmallow will disqualify your team.


Time allocated: 10 minutes

43

LOOK What can I see?	THINK What does it mean?	DECIDE What can I do?

44

What could I do to stay calm?



DECIDE
What can I do?

What could I say or do?

How could I think differently about the situation?

45

DECIDE – *how could I think differently about the situation?*

Today, I choose to be confident

All problems have solutions

All I can do is my best

46

DECIDE – what could I do to stay calm?




HAPPY THOUGHTS

1, 2, 3, 4, 5, 6, 7, 8, 9, 10



Talk to someone

47

DECIDE – what could I say?

Do you have any ideas?

I think we should try it this way..

I think we have started to go off topic..

That's a great idea, but what about..

48

What might be the positive consequences of these actions?

• For me..

• For the group..



49



Module Six

Helping each other in the classroom

50

Activity Stations

STATION 1	STATION 2	STATION 3	STATION 4	STATION 5
Backward sentences 	No words 	White noise 	Colours not words 	All at once

51

What were you thinking?



52

How did you feel during this activity?



53

Activity

Helping others in the classroom

- Complete "Look, Think, Decide" worksheet independently
- Share your responses with students at your table
- Practice role playing your scenario and the solution you have chosen in your groups
- Feedback your responses and demonstrate your role play

54

Bobby has a lot of energy

ANGRY NERVOUS HAPPY SAD RESTLESS FRUSTRATED HAPPY SAD NERVOUS EMBARRASSED

55

Charlotte misses the instructions

WORRIED HAPPY SAD EMBARRASSED DREAMY

56

Anthony finds creative writing hard

FRUSTRATED ANGRY SAD EMBARRASSED HAPPY

57

POSITIVE CONSEQUENCES OF HELPING OTHERS IN CLASS

58

Module Seven
Making sense of recess and lunch

59

Danielle's reading her book at lunch time

60

Charlotte has finished eating her lunch on her own



61

Anthony tries to play a game of soccer



62

Activity: Choose your own ending



GET INTO GROUPS
OF 4 OR 5.



COMPLETE THE
WORKSHEET IN
YOUR GROUP.



CHOOSE THE
ENDING THAT HAS
BEST
CONSEQUENCES.



CREATE A SHORT 30
SECOND TO 1
MINUTE VIDEO OF
YOUR SCENARIO

63

Feedback to the class – Danielle's scenario



ENDING A

OR



ENDING B

64

Feedback to the class – Charlotte's scenario



ENDING A

OR



ENDING B

65

Feedback to the class – Anthony's scenario



ENDING A

OR



ENDING B

66



ACTIONS IN VIDEOS



POSITIVE CONSEQUENCES


67





Module Eight

Resolving conflict at recess and lunch

68



Recess and lunch

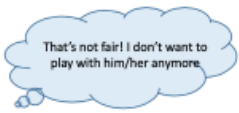
69




70

Has something like this ever happened to you?

• What did you THINK?







OR



71

Has something like this ever happened to you?

• Drag and drop the feelings to the photographs

ANGRY

ANNOYED

SAD

HAPPY

• How did you feel?

72



73

Activity:
Wheel of Choices

1. Spin the spinner
2. Discuss the choice as a class
3. Choose the best choice based on the consequences

74



75

Module Nine

Managing our emotions when things change at school

76



77

What are some activities, events or situations that are different to normal at school?

78



79

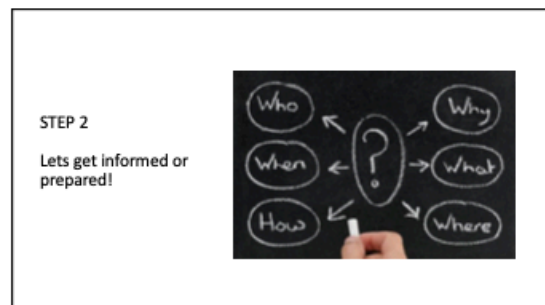


80

STEP 1
Let's change our thinking!

Example	NEGATIVE THOUGHT	POSITIVE THOUGHT
Your best friend is moving school	I'm not going to have any friends at school!	I might be able to make new friends!
You have to present an assembly item with your class	I hate public speaking at assembly!	I can do this!
The canteen no longer sell your favourite food	This sucks I hate it when they change the canteen menu!	Its OK, I heard the sausage rolls are pretty good!
You have a relief teacher	I hate it when things are different at school!	My teacher will be back soon and everything will be back to normal.

81



82



83

STEP 4 – Lets get help!

Who can I ask?	How can I ask?
<input type="checkbox"/> Classroom teacher <input type="checkbox"/> Friend <input type="checkbox"/> Classmate <input type="checkbox"/> On-duty teacher <input type="checkbox"/> Principal <input type="checkbox"/> Other adult nearby	

84



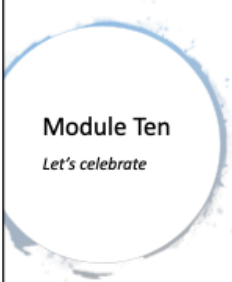
Next week is
our last week of
In My Shoes

Remember to:

- ☐ Invite your parents
- ☐ Bring a plate

Get ready to party!

85



Module Ten

Let's celebrate

(Insert photograph of students participating in In My Shoes or a highlight of the program)

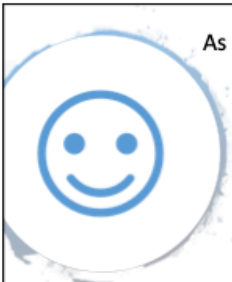
86

Our learning journey so far –

(Insert photograph from Week 1)	(Insert photograph from Week 2)	(Insert photograph from Week 3)
(Insert photograph from Week 4)	(Insert photograph from Week 5)	(Insert photograph from Week 6)
(Insert photograph from Week 7)	(Insert photograph from Week 8)	(Insert photograph from Week 9)

What are three things you have learnt from In My Shoes?

87



As a class, we can try to:

- ☒ _____
- ☒ _____
- ☒ _____
- ☒ _____

88

Thank-you for participating in
In My Shoes



89

Appendix I: Author Contribution Statements

Appendix II: Author Contribution Statement Chapter 2

As co-authors of the paper entitled, 'Evaluating the psychometric quality of school connectedness measures: A systematic review', we confirm that Amy Hodges has been the principal researcher and has made the following contributions:

- Conceptualisation and design of the research;
- Data collection, analysis and interpretation;
- Writing the manuscript and critical appraisal of the findings;
- Corresponding author for communication with the journal

My contribution to the paper was consistent with co-author and involved the following contributions:

- Assistance with conceptualisation and design of the research;
- Assistance with data collection; and
- Review and editing of the manuscript.

Signed: Renee Speyer

Date: 4th August 2021

Our contribution to the paper was consistent with the role of supervisors and involved the following contributions:

- Assistance with conceptualisation and design of the research;
- Assistance with data analysis and interpretation; and
- Review and editing of the manuscript

Signed: Reinie Cordier

Date: 30th August 2021

Signed: Annette Joosten Date: 2nd September 2021

Signed: Helen Bourke-Taylor Date: 11th August 2021

Appendix I2: Author Contribution Statement Chapter 3

As co-authors of the paper entitled, ‘School participation: The shared perspectives of parents and educators of primary school students on the autism spectrum’, we confirm that Amy Hodges has been the principal researcher and has made the following contributions:

- Conceptualisation and design of the research;
- Data collection, analysis and interpretation;
- Writing the manuscript and critical appraisal of the findings;
- Corresponding author for communication with the journal

Our contribution to the paper was consistent with the role of supervisors and involved the following contributions:

- Assistance with conceptualisation and design of the research;
- Assistance with data analysis and interpretation; and
- Review and editing of the manuscript

Signed: Reinie Cordier Date: 30th August 2021

Signed: Annette Joosten Date: 2nd September 2021

Signed: Helen Bourke-Taylor Date: 11th August 2021

Appendix I3: Author Contribution Statement Chapter 4

As co-authors of the paper entitled, 'Expert consensus on the development of a school-based intervention to improve the school participation and connectedness of elementary students on the autism spectrum: A Delphi study', we confirm that Amy Hodges has been the principal researcher and has made the following contributions:

- Conceptualisation and design of the research;
- Data collection, analysis and interpretation;
- Writing the manuscript and critical appraisal of the findings;
- Corresponding author for communication with the journal

Our contribution to the paper was consistent with the role of supervisors and involved the following contributions:

- Assistance with conceptualisation and design of the research;
- Assistance with data analysis and interpretation; and
- Review and editing of the manuscript

Signed: Reinie Cordier Date: 30th August 2021

Signed: Annette Joosten Date: 2nd September 2021

Signed: Helen Bourke-Taylor Date: 11th August 2021

Appendix I4: Author Contribution Statement Chapter 5

As co-authors of the paper entitled, ‘Closing the gap between theory and practice: conceptualisation of a school-based intervention to improve the school participation of primary school students on the autism spectrum and their typically developing peers’, we confirm that Amy Hodges has been the principal researcher and has made the following contributions:

- Conceptualisation and design of the research;
- Data collection, analysis and interpretation;
- Writing the manuscript and critical appraisal of the findings;
- Corresponding author for communication with the journal

Our contribution to the paper was consistent with the role of supervisors and involved the following contributions:

- Assistance with conceptualisation and design of the research;
- Assistance with data analysis and interpretation; and
- Review and editing of the manuscript

Signed: Reinie Cordier Date: 30th August 2021

Signed: Annette Joosten Date: 2nd September 2021

Signed: Helen Bourke-Taylor Date: 11th August 2021

Appendix I5: Author Contribution Statement Chapter 7

As co-authors of the paper entitled, 'Evaluating the feasibility, fidelity, and preliminary effectiveness of a school-based intervention to improve the school participation and feelings of connectedness of elementary school students on the autism spectrum', we confirm that Amy Hodges has been the principal researcher and has made the following contributions:

- Conceptualisation and design of the research;
- Data collection, analysis and interpretation;
- Writing the manuscript and critical appraisal of the findings;
- Corresponding author for communication with the journal

My contribution to the paper was consistent with co-author and involved the following contributions:

- Assistance with conceptualisation and design of the research;
- Assistance with data analysis and interpretation and
- Review and editing of the manuscript.

Signed: Yu-Wei Chen

Date: 30th August 2021

Our contribution to the paper was consistent with the role of supervisors and involved the following contributions:

- Assistance with conceptualisation and design of the research;
- Assistance with data analysis and interpretation; and
- Review and editing of the manuscript

Signed: Reinie Cordier Date: 30th August 2021

Signed: Annette Joosten Date: 2nd September 2021

Signed: Helen Bourke-Taylor Date: 11th August 2021