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**Team collaboration to support students who use Augmentative and
Alternative Communication to communicate
in inclusive classroom settings.**

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

Master of Speech Language Therapy

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Abstract

The ultimate goal of augmentative and alternative communication (AAC) intervention is to enable students with complex communication needs to participate actively across different settings and to be able to have a voice in decision making relating to their life. This study utilized a case study methodology to identify aspects of team collaboration that supported the successful inclusion of two students who used AAC to communicate in the mainstream classroom.

Two school teams supporting students who used AAC were recruited from the researcher's existing caseload. Multiple methods of data collection including interviews, classroom observations and researcher reflections were used to obtain an in-depth description of participant perspectives. Both barriers and supports for AAC use in the classroom were discussed.

The results identified that there are similarities between the perspectives of New Zealand parents and teachers of students who use AAC and those identified in international research. Key findings included: the importance of effective teaming to support these students, the need to allow extra time both for the team to meet and for the provision of in-class support, how technical difficulties with AAC devices can be a barrier to AAC use, and the impact of a positive team attitude for the successful inclusion of these students. The research findings also highlighted student participation in goal-setting as a crucial factor for achieving successful outcomes.

Chapter One

Introduction

This study utilizes a descriptive case study design to identify the key elements of collaborative team support for two students who use augmentative and alternative (AAC) systems in mainstream classroom settings. This approach was selected as it allowed the researcher to complete this study alongside her work as a speech language therapist (SLT) employed by the Ministry of Education (MOE), supporting students' communication in the school setting. The following chapter defines key concepts and provides a context and rationale for the study.

Complex Communication Needs

Complex communication needs (CCN) result from significant motor, language, cognitive and/or sensory perceptual impairments which mean that the individual is unable communicate in conventional ways. This may be as a result of cerebral palsy, autism, Down syndrome or other developmental disabilities. Children with CCN may experience restricted access to the environment, limitations around their interactions with others and a lack of opportunities for communication. The implementation of an Augmentative and Alternative Communication (AAC) system for these children can help to reduce the impact of these difficulties (Light & Drager, 2007).

Augmentative and Alternative Communication

The American Speech-Language-Hearing Association defines AAC as attempts to “compensate for temporary or permanent impairments, activity limitations and participation restrictions of

individuals with severe disorders of speech-language production and/or comprehension, including spoken and written modes of communication” (American Speech-Language-Hearing Association, 2005, p.1).

AAC systems can be divided into two broad groups, known as aided and unaided forms of communication. Unaided forms include vocalisations, gestures, facial expressions and manual signs. Aided forms of AAC communication include additional external supports which can range from “low-tech” aids such as a communication board with visual-graphic symbols to “high tech” computer systems or apps that can “speak” for the user (Sevcik & Ronski, 2000). Research has found that individuals with complex communication needs (CCN) do not usually use just one form of communication. Rather, they rely on multiple modes of communication to enable them to communicate effectively in different contexts. These can include speech and speech approximations, manual signs and gestures, “low-tech” systems and “high-tech” communication devices (Blackstone, Williams, & Wilkins, 2007; Light & Drager, 2007)

Aided forms of AAC can be accessed either directly or by scanning. Examples of direct selection include typing and pointing with a hand or a head mount, or using eye gaze to select symbols. Scanning is used as an access method when an individual’s physical disabilities impact on their motor control meaning that they are unable to use direct selection. In these cases, choices of items are either presented by a skilled communication partner or displayed by a “high-tech” AAC device in a systematic and consistent pattern. The AAC user waits while the partner or device proceeds through the items until their choice is reached. The AAC user then indicates their choice using different means including responding to a “yes/no” question from their

communication partner or activating a switch. Despite limited research evidence, it is presumed that scanning, while requiring less motor control, requires more cognitive capacity than direct selection (Sevcik & Rowski, 2000).

There is a growing body of evidence that AAC use is beneficial for students with CCN (Allena, Schlosser, Brock, & Shane, 2017; Rispoli, Franco, van der Meer, Lang, & Camargo, 2010), although each student is an individual and the specific system that will work for them depends on a complex interaction between different factors including the child themselves, their communication partners and the context (Light & Drager, 2007). Due to the close links between communication and social inclusion, effective use of AAC supports can lead to increased independence and participation for children with CCN; therefore it is important that these children receive timely assessment and provision of appropriate AAC supports.

Technological advances in the field of AAC and the increasing availability of assistive technology since the release of the iPad and other mobile technologies, mean that children and adults with CCN have increasing access to AAC supports (Light & McNaughton, 2012a). While increased provision of AAC represents a positive step forward, it is important to recognise that AAC is a tool to increase participation rather than an end in itself. In addition to access to appropriate AAC systems, children and adults with CCN need effective support to help them to achieve communicative competence (Light & Drager, 2007).

Communicative Competence

The model of communicative competence was initially proposed by Light in 1989, expanded in 2003, and then re-examined in 2014. Light and McNaughton (2014) discussed the definition of

communicative competence including the four inter-related domains of linguistic, operational, social and strategic competence. Linguistic competence includes competence with linguistic skills in both the languages that surround them (used by their family and social community) and the language of their AAC system; operational competence relates to the technical skills required to achieve communicative competence with both aided and unaided AAC; social competence includes the pragmatic and interpersonal skills required for communicative competence and strategic competence includes the ability to identify barriers to communication and use strategies to cope with these (Light & McNaughton, 2014).

Communicative competence has been identified as essential for individuals with CCN as it provides them with the means to achieve meaningful goals throughout their life (Calculator & Black, 2009; Lund & Light, 2007).

Provision of AAC services in New Zealand

In New Zealand, the lead provider of AAC services to preschoolers and school age children is the Ministry of Education (MOE) speech language therapist (SLT), while Ministry of Health SLTs are responsible for AAC provision for the adult population. TalkLink Trust has contracts with both the Ministry of Health and the Accident Compensation Corporation to provide AAC assessment services to eligible clients. MOE SLTs can refer clients to TalkLink when they require support or access to funding, particularly regarding the provision of high-tech AAC.

Collaborative teaming

International research has indicated that there has been a shift from the school-based SLT's role as a provider of individual AAC therapy sessions, to a role as a member of a collaborative

team supporting the student (Bailey, Stoner, Parette, & Angell, 2006; Chung & Stoner, 2016).

Within the collaborative team the SLT needs to be aware not only of the needs of the individual AAC user but also of the broader classroom context, working together with the rest of the team around the student to maximise the AAC user's participation in both social and academic activities. When supporting school age students, the SLT collaborates with the school team to develop strategies for including the student who uses AAC in the classroom, both academically and socially, and supports the team with the implementation of these strategies within the classroom (Soto, Müller, Hunt & Goetz, 2001a). This is consistent with a move in New Zealand for MOE SLTs to adopt a more collaborative model when supporting students with CCN (Ministry of Education, 2015b) although there has not yet been any research undertaken into how this currently works in practice.

Study teams

In this study the collaborative teams around each student included the student's mother, classroom teacher, specialist teacher, teacher aide and the SLT in a dual role as MOE SLT and researcher. Both teams included in this study were part of the SLT's existing MOE caseload and she knew all team members well; having worked with both teams for almost two years prior to beginning this research and being a frequent visitor to the classrooms of both students included in this study.

The SLT has been employed by the MOE as an SLT for the past six years and over this time she has worked with multiple students who use different types of AAC supports to communicate. The SLT was motivated to undertake this study by her work supporting these students and the

teams around them in inclusive classroom settings. By asking questions about the process of supporting these students and collecting and documenting evidence of the collaborative process, the SLT hoped to gain insights into how this could be more effective. The SLT primarily wanted to examine how she could improve her own practice in this area but also acknowledged the possibility that her findings could be helpful for other MOE SLTs working with this client group.

Research aims

The primary objective of AAC service provision is to achieve positive outcomes for students who use AAC. Therefore, it is essential that a team providing AAC service has the necessary resources and is able to work together collaboratively to produce the desired student outcomes. A body of international research has shown improved access to the curriculum and increased participation for students who use AAC when there is an effective team around these students (Chung & Stoner, 2016). The goal of this study is to better understand the process of team collaboration for two students who use AAC to communicate in the mainstream classroom in order to identify what may help to improve team collaboration in these contexts.

Chapter Two

Literature review

The aim of this study is to describe aspects of successful team collaboration to support students using augmentative and alternative communication (AAC) to communicate in the mainstream classroom in New Zealand. This literature review will explain the role of AAC in supporting students with complex communication needs (CCN) to participate in educational settings and examine current models of practice for these children. The review will examine the importance of supporting students to participate and the perspectives of parents, teachers and the students themselves. Barriers and facilitators to the successful inclusion of these students in mainstream classrooms will also be examined.

Student participation

The ability to communicate effectively is essential for students to participate and learn in both social and academic contexts. Students who have communication difficulties are at an increased risk of academic underachievement, developing challenging behaviour and experiencing difficulty with peer relationships (Rubin, Bukowski, & Laursen, 2009) .Therefore the provision of effective AAC systems for children with complex communication disorders is essential.

The importance of meaningful participation in learning is recognised in the New Zealand Disability Strategy which states: “Our learning pathway supports us to develop friendships and social skills, as well as resilience, determination and confidence. It gives us a sense of belonging,

builds our identity and language skills, and prepares us for life beyond compulsory education” (Office of Disability Issues, 2016, p.24). These principles should underpin education programmes for students with disabilities in New Zealand.

Communication is a fundamental part of the education process and for students with CCN; AAC is an important tool in supporting them to achieve meaningful participation. This means that students with CCN are able to participate in the same activities as peers without communication difficulties, and that appropriate adaptations (such as provision of AAC) are made to support this participation (Beukelman & Mirenda, 2013). For students who use AAC to participate in education it is essential that they are able to communicate effectively and efficiently with their classmates and teachers (Calulator & Black, 2009; Kent-Walsh & Light, 2003; Soto et al., 2001a). AAC use can increase students’ ability to participate in activities such as sharing their ideas in class and chatting with friends at lunch time. AAC use also widens students’ range of communication partners and enables them to communicate effectively across different contexts (Stoner, Angell, & Bailey, 2010).

Student perspective

Recent literature has discussed the importance of children with communication difficulties being actively involved in decision making around support services in order to more effectively address the impact that communication difficulties have on participation and quality of life (Dockrell, Lindsay, Roulstone, & Law, 2014; Doell & Clendon, 2017). In the *Better Communication Research Programme* (BCRP) carried out in the UK, children were asked about their experiences of communication difficulties. Themes that emerged as important to children

across all interviews were: having time for fun and laughter in both social activities and relationships with others; feeling that they were being supported and listened to; dealing with their emotions especially with feelings of frustration, anger and sadness; and improving the way other people behaved towards them. The perspectives of the children differed from those of the parents in this study highlighting the importance of allowing the children to speak for themselves (Dockrell, et al., 2014).

In the New Zealand context, in their engagement forum in 2015, the Ministry of Education sought the opinions of families about changes to the education system. The *Engagement forums feedback document* (Ministry of Education, 2015a) presented combined feedback from parents and children and therefore children's individual perspectives on the support services provided were not documented. As there is no current information available on the individual perspectives on support services of students with communication difficulties in New Zealand, further research is required.

Parents' perspectives

Angelo, Jones and Kokoska (1995) sought to identify parents' needs, priorities and preferences regarding the provision of AAC services for their child. This study, conducted in the USA, surveyed a group of 66 families and compared the responses of mothers and fathers. The results indicated that parents did not always have the same priorities for their child. Mothers' priorities in order of importance were: integrating AAC devices into the community, developing community support and awareness for AAC users, increasing their own knowledge of AAC devices, getting computer access for their child, planning for future communication needs,

finding trained professionals to work with their child, and finding advocacy groups for parents of children using AAC. For fathers the highest priority was increasing their own knowledge of AAC, followed by planning for future communication needs, finding volunteers to work with their child, getting funding for devices or services, knowing how to teach their child using their AAC device, and integrating the AAC device into their household.

Focus on functional skills.

There is a significant body of research indicating that parents identify the acquisition of functional skills as a priority for their children with CCN (Bailey, Parette, Stoner, Angell & Carroll, 2006; Baxendale, Lockton, Adams, & Gaile, 2013; Calculator & Black, 2010; Dockrell, et al., 2014; Goldbart & Marshall, 2004; Marshall & Goldbart, 2008; Myers, 2007; Spann, Kohler, & Soenksen, 2003). Light and McNaughton (2014) discussed a functional approach to communication which emphasizes real world outcomes for AAC users, with intervention targeting skills that are valued by the AAC users and their families. This functional approach aligns with the International Classification of Functioning, Disability and Health (World Health Organisation, 2001) which focuses on functional communication and meaningful participation within society.

Within the body of research regarding the functional skills that parents of children with CNN prioritise there are several key themes. These include that parents prioritise skills which support their child to make choices, to be accepted and included, to develop independence, and to increase social participation and opportunities to communicate.

Spann, Kohler and Soenksen (2003) examined the priorities of parents of children with Autism Spectrum Disorder (ASD) in the USA. Parents' priorities in this study were for their children to play with classmates, to have friends and to participate in social occasions such as birthday parties of friends, rather than for their children to meet specific academic goals (Spann, et al., 2003). This is similar to the findings of the BCRP, in which parents and children were asked about their perspectives on communication difficulties. This study included a large number of participants with differing experiences of communication difficulties. Parents in the BCRP identified their child's communication skills as underpinning their success in other life skills and enabling their child to be independent, included and accepted (Dockrell, et al., 2014).

Goldbart and Marshall (2004) interviewed the parents or caregivers of 11 children using AAC in the UK. These parents also identified their children's communication problems as a high priority in their family's life because of the close links between communication and social inclusion. All families identified the ability to make choices independently and understanding their child's individual personality as important to them. Like the parents in the BCRP (Dockrell, et al., 2014), parents in this study saw the amount that a child could make themselves understood as contributing to the amount to which the child was included or excluded at school and in social situations.

Bailey et al., (2006a) interviewed seven primary caregivers of students who used AAC to communicate in USA school settings. Parents' priorities for their children were similar to previous studies and included increasing independence, communicative competence, number of communication partners, and number of opportunities to communicate (Bailey et al., 2006a).

Calculator and Black (2010) used an electronic questionnaire to identify key skills that parents of children with Angelman's syndrome in the USA would like to see included in their child's AAC programme. Parents were presented with a list of practices and asked how favourably they viewed these and were asked to list their five highest priorities. Skills viewed as high priority were similar to those identified in Bailey et al., (2006a) and included:

- The ability to express wants and needs and to make choices.
- To learn to communicate with a wide range of partners.
- To be able to share feelings and experiences with others.
- To acquire life (or functional) skills.
- To be able to initiate and maintain conversation.

Parents' most frequently expressed priority was for their child to be able to express their wants and needs and to make choices. Parents identified that these skills would enable their child to develop independence and to have an active role in determining events that affect them. Other skills that were important to parents included their child's ability to develop and maintain relationships with others in order to improve their quality of life.

Baxendale, Lockton, Adams, and Gaile (2013) interviewed parents and teachers of children with social communication disorders in the United Kingdom. The findings were also similar to those in previous research, that parents prioritized functional communication goals which would lead to increased overall well-being for their children. Additional desired outcomes of intervention for this group of parents included increased decreased frustration and improved relationships at home (Baxendale, et al., 2013).

Although parents' priorities will vary from family to family and may change as their child grows and moves to different educational settings, the general themes that emerged across studies indicate that the priorities that parents have for their children who use AAC are similar to those identified for the general population of students with CCN. These include the development of functional communication skills which will support students to develop independence and improve their quality of life (Bailey et al., 2006a; Baxendale et al., 2013; Calculator & Black, 2010). Parents also identified that there are significant demands placed on them by parenting children with complex communication needs.

Family demands.

Marshall and Goldbart (2008) followed up their 2004 study by further examining their interviews, and exploring how children's need for and use of AAC impacted on their families. These parents reported feeling worn down and socially isolated as a result of the lack of services to support them in parenting their children with severe disabilities and they often reported feeling overwhelmed by the demands placed on them. Parents reported that communicating with their child and enabling others to do so placed significant demands on their time; and that they and other family members had to learn new skills and often had to act as an interpreter for their child. Parents also reported building up detailed knowledge about their child with some also having high levels of specialist knowledge about their child's medical condition or equipment.

Parents also described feelings of guilt and frustration that they were not spending enough time working with their children. These parents tried to understand how their children might

feel about their communication impairments and how frustrating it must be not to be able to communicate what you are thinking. Parents reported that their child's communication impairment impacted on parent-child relationships due to the large amount of time and energy that this demanded. Parents also identified that implementing high-tech communication devices could be difficult and placed another additional demand on families.

Families varied in how much and at what point they prioritized communication and in how much they wanted to become expert and be involved with the AAC process. This study (like several others) also suggested that it is appropriate to allow families input into the timing of when to learn new skills due to the demands often placed on them in multiple areas (Goldbart & Marshall, 2004; Myers, 2007; Ronski et al., 2011)

Professional support.

There is a significant body of research examining parents' perspectives on the role of professionals in supporting families of children with CCN (Bailey et al., 2006a; Calculator & Black, 2010; Goldbart & Marshall, 2004; Marshall & Goldbart, 2008; Myers, 2007). In Goldbart and Marshall (2004) and Marshall and Goldbart (2008), several themes emerged from interviews with parents, including insufficient provision of information around communication, AAC, and AAC use, which meant that parents felt that they were left to find information independently. Parents also reported that professionals sometimes withheld information until the parents were judged to be ready for it. Parents reported that they had not received enough support with accessing an AAC system and some had to find information about a system and

initiate its use independently. Parents also identified that they often had to take on the bulk of the responsibility for programming their child's AAC system.

Parents may feel that they need to become advocates for their children with special needs in order to ensure they receive the best possible special education services (Bacon & Causton-Theoharis, 2013). In Goldbart and Marshall (2004) and Marshall and Goldbart (2008), parents reported having to be "pushy" in order to keep professionals active on their child's behalf.

Parents who did not see themselves as pushy, reported being less involved and receiving less professional support than they would have liked. These parents, like those in Calculator and Black (2010), also felt that professionals needed to have a better insight into the demands placed on them as these were much higher than parenting a typically developing child.

In Bailey et al., (2006a), parents viewed the provision of appropriate training and technical support around AAC use as the responsibility of the school based professionals. The authors also noted that as AAC devices increased in technical complexity, the more training the team required to operate these effectively. As in Myers (2007), when the training provided was inadequate, this was associated with less effective use of the student's AAC device.

While there have been multiple studies undertaken internationally to examine parents' priorities for their children with complex communication needs (Baxendale et al., 2013; Calculator & Black, 2010; Carroll, 2010; Iacono & Cameron, 2009; Spann et al., 2003) there is no published research available in New Zealand. In their 2015 Engagement forum (Ministry of Education, 2015a) the Ministry of Education sought feedback from families in order to develop

a more family-centred model of service delivery. In this, parents expressed a desire for a cohesive and co-ordinated service which considered the needs of the child and family more holistically (Ministry of Education, 2015a, p127). In order to address these needs, a model of service delivery that enhances opportunities for establishing partnerships with parents is required.

Partnership models

There is diversity in the nature and extent of parents' ability and willingness to be involved in partnerships with specialists, which can vary throughout the intervention process as different issues arise which may be at the forefront for the family at that time. Ronski et al., (2011) suggested that although parents are very capable of learning the intervention strategies required to support children with CCN, care needs to be taken to consider each family's individual preferences and requirements when considering the provision of AAC services.

Carroll (2010) reported similar findings to Goldbart and Marshall (2004) and Myers (2007), about the extent to which parents varied in their involvement in partnerships to support their child's communication. These parents (in Ireland) generally expected a medical rather than a family-centred approach. Parents prioritized therapy to "fix" the problem of reduced speech clarity for their children with an intellectual disability rather than addressing broader and more functional goals. The author suggested that a lack of collaboration and discussion had led to a mismatch between expectations of parents and professionals and suggested that effectively involving parents in goal setting could help to address this.

Similarly to Carroll's (2010) findings, Iacono and Cameron (2010), reported that Australian SLTs working in early intervention identified that parents sometimes had negative attitudes towards their use of naturalistic approaches and thought that speech-language therapy should involve individual therapy sessions working on speech sounds. SLTs had difficulties implementing a holistic approach with families which the authors suggested may have been due to lack of time and the competing demands of their clinical role.

Watts Papas, McAllister and McLeod (2016), examined parents' experiences of involvement in therapy for their children with speech sound disorders in Australia. In this study, as in Carroll (2010) and Iacono and Cameron (2010), parents expressed a preference for their child to receive individual treatment sessions with the SLT. While parents were often present during these sessions, the SLT took a leading role in setting goals for intervention and formulating intervention activities. Although the parents identified that they were in a partnership with the SLT, they saw the SLT as taking the lead in this partnership. The authors suggested that these parents were happy to follow the SLT's lead as they wanted to utilise the SLT's experience and felt that they lacked the skills to make decisions regarding intervention goals themselves.

In Watts Papas et al., (2016), parents were happy to carry out home practice activities and did not report feeling overwhelmed by their child's communication difficulties. The authors suggested that the short-term nature and positive outcomes associated with intervention for speech sound disorders contributed to parents' motivation to complete follow up activities at home. The authors also suggested that the views of the families in this study may differ from those of parents of children with more global communication difficulties, as these parents

viewed their child's difficulty as a short-term problem which could be "fixed" rather than something that would have a long-term impact on the family.

Watts Papas et al., (2016) also identified that while professionals view family-centred care as best practice, as parents are the experts about their child, this may not be what the parents perceive. The authors suggested that parents' belief that individual therapy is the "gold standard" stemmed from previous exposure to the health care system. This study also suggested that parental satisfaction regarding services was linked to comparisons with this expected "gold standard". This may also explain the preferences for individual therapy expressed by parents in Carroll (2010) and Iacono and Cameron (2010). Watts Papas et al., (2016) suggested that if SLTs want to successfully involve parents they need to spend time discussing expectations, and that rather than trying to pressure families into becoming involved, SLTs should ensure that treatment activities align with the family's goals for their child. SLTs need to be aware of the dynamic nature of parental interest and ability to participate in intervention and follow the family's lead in this area (Watts Papas et al., 2016).

Family centred practice.

A gradual move from the medical (or individual) model of health and disability to a more social model (Swain, French, Barnes, & Thomas, 2014) has meant that the perception of the role of the family and of context in disability has changed. Parents are now viewed as experts on their child (Carroll, 2010) and as important partners in all aspects of decision-making. Family-centred care, an approach that emphasizes partnership, support, respect, and information exchange between parties has been identified as the best-practice approach to meeting the needs of

children with disabilities and their families (Keen, 2007; Law et al., 2003). Organisations with family-centred cultures are associated with improved parental satisfaction with services (King, Rosenbaum, & King, 1997; Law, et al., 2003). The New Zealand Ministry of Education emphasizes the importance of family-centred approaches in their Specialist Service Standards (Ministry of Education, 2015b) and has recently sought the input of families in their Engagement forum (Ministry of Education, 2015a).

Family-centred approaches not only consider the child and the family but also the context in which they are operating (Bailey et al., 2006a). AAC interventions need to address the development of functional communication skills to support individuals with CCN to become competent communicators and express their wants and needs, develop social closeness, exchange information and participate in social situations (Light & McNaughton, 2014). In accordance with the model of family-centred care, any intervention to support the use of AAC in the classroom should address the goals that the family themselves identify for their child. The needs, preferences and priorities of family members should be identified early so that families feel included in the AAC assessment process (Angelo, Jones, & Kokoska, 1995).

Service delivery.

Research suggests that students and their families value acquiring skills that foster their self-determination and ability to be involved in decision-making (Bailey et al., 2006a; Baxendale et al., 2013; Calculator & Black, 2010). Therefore service delivery models for students with CCN need to focus on shared-decision making and partnership with families.

Cirrin et al., (2010) carried out an evidence-based systematic review (EBSR) regarding SLTs methods of service delivery, and how these influence the outcomes for children with complex communication disorders. Overall, this EBSR found that there was a lack of high quality research comparing different models of service delivery. Some evidence suggested that classroom based intervention was at least as effective as “pull-out” (therapy provided in a separate therapy room), particularly for vocabulary outcomes. It was also suggested that intervention in classroom settings could promote students’ generalisation of skills. Cirrin et al., (2010) suggested that given the lack of conclusive research, decisions around models of service delivery should be based on the needs of each individual student, and in the case of students with complex educational needs, in collaboration with the team supporting this student. This means that the role of the SLT in supporting communication development is changing, and now includes not only providing intervention which improves fundamental language skills but also providing therapy that supports students to progress in the classroom and to access the curriculum effectively.

Educational contexts.

International research has suggested that systemic changes are needed to support the implementation of family-centred care (Law et al., 2005). These suggested changes also align with the philosophy of inclusive education which identifies the importance of educators partnering with families (and possibly communities) to ensure that learning is relevant and can be applied at home and in other real life contexts (UNESCO, 2005).

The New Zealand Education Act 1989 gives students with 'special educational needs' the same rights to enrol and receive education in state schools as such students who are educated in alternative settings (Ministry of Education, 1989). As inclusive education becomes accepted practice for students who use AAC, it is important that research is carried out to identify factors that contribute to successful outcomes for these students. Successful inclusion of students with special education needs requires more than just physical presence in the general education classroom and needs to include active participation in instructional activities (Copeland & Cosbey, 2008; Soto, et al., 2001a).

In the New Zealand context, the Treaty of Waitangi (1840) contains the principles of partnership, participation and protection. The principles of partnership and participation in the treaty provide a foundation for shared decision-making that benefits all learners. In order to meet their obligations under the treaty, schools need to work collaboratively and acknowledge the knowledge and expertise of the diverse people contributing to learning for students, and recognise the unique position of Māori as tangata whenua and the contribution Māori make to education (Ministry of Education, 2012).

The report of the New Zealand Education Review Office (ERO) (Education Review Office, 2015) documented the results of an evaluation of 152 schools using the Inclusive Schools Matrix, a self-assessment tool which schools completed to identify the level of inclusive practices present in their school. ERO identified that where schools were successful in including students with special education needs, there was a high level of team work in support of these students, and effective communication and collaboration between the school, families, whanau, and external

professionals. Inclusive schools included students with special education needs in age-appropriate regular classes and had effective practices in place to support the students' needs, including their language, culture, and identity. Regular meetings between school staff, specialist teachers and specialists ensured ongoing professional expertise was available and used effectively. Schools allocated time for staff to meet regularly to identify areas requiring support, plan programmes collaboratively, monitor progress, share effective practices, discuss successes and challenges, and identify needs for specialist advice. The most effective schools used high quality teaching practices, developed high quality individualised plans based on evidence, and responded flexibly to individual students' needs.

These findings from ERO (Education Review Office, 2015) are similar to the results of research conducted overseas suggesting that the international findings are relevant for New Zealand. While ERO has focused on the inclusion of students with special education needs, there has not been any research undertaken in New Zealand that specifically examines the inclusion of students who use AAC. It is also important to note that these findings from ERO represent practice in the most successful schools rather than practice around inclusion for students with special needs in all schools. Effective translation of evidence-based strategies into all general education classrooms is essential to ensure that what is possible becomes accepted practice (Light and McNaughton, 2012b).

Support for inclusion

There is an increasing body of international research which suggests that participation of students with extensive support needs in a general education classroom is associated with better outcomes for these students both academically and socially (Copeland & Cosbey, 2008; Jorgensen, McSheehan, & Sonnenmeier, 2007). This research also indicates that evidence-based teaching practices commonly used in general education classrooms can be effective for all learners including those with extra support needs (Copeland & Cosbey, 2008). Inclusive pedagogy suggests that rather than providing special programmes for specific students, teaching strategies should target increasing the participation and achievement of all students including those with special educational needs (Florian & Black-Hawkins, 2011).

Jorgensen et al., (2007) examined beliefs around presumed competence relating to students with complex communication and learning needs and how these related to inclusion in the general education classroom. Presumed competence is based on the idea that it is less dangerous to presume that a student is intelligent and able to learn even though they may not have demonstrated this through traditional methods of assessment. When school teams received training around presumed competence, this resulted in changes in individual education plan (IEP) goals for students and in increased inclusion of these students in the general education classroom. School teams became a “community of supportive learners” (Jorgensen et al., (2007) p. 258) to support problem-solving, risk-taking, in-depth reflection, and consideration of differing points of view. Team members learnt that there is an advantage in

keeping students in the general education classroom where instruction is provided by the general education teacher and classmates provide learning models.

Current efforts to promote inclusion have shifted focus from where a student is placed to how the student is taught (Kurth, Lyon, & Shogren, 2015; Yun-Ching Chung & Carter, 2013). Kurth, Lyon, and Shogren (2015) sought to identify best practices associated with inclusion of students with severe disabilities. Participants in this study were 18 students in general education classrooms in the USA. Results indicated that on the whole, students were able to participate successfully as curriculum and activities in their classrooms were differentiated and accessible for a wide range of students. Systems which supported students with disabilities were part of whole-class supports which included elements of universal design for learning (UDL). UDL has been identified as interconnected with inclusion (Lowrey, Hollingshead, Howery, & Bishop, 2017) and the implementation of UDL has been identified as an important direction in Education in New Zealand by the Ministry of Education:

Universal Design for Learning (UDL) is a research-based framework that helps teachers plan learning to meet the diverse and variable needs of all students. It supports schools to realise the vision of *The New Zealand Curriculum*: that no-one will be left out or discriminated against. UDL supports educators to design respectful, inclusive environments where everyone is learning and achieving and diversity is seen as a source of strength (Ministry of Education, 2017)

For some of the schools in the Kurth, Lyon, and Shogren (2015) study, another important aspect of including students with severe disabilities was effective collaboration with itinerant personnel such as SLTs. This study offered a reminder that inclusive education is a work in progress that must be reflected on, analysed, and continuously fine-tuned. While it is now accepted that students who use AAC can be included in the general education classroom, research has also identified that positive attitudes and commitment from teachers are essential if this is to be successful.

Teacher perspectives.

Kent-Walsh and Light (2003) examined the experiences of general education teachers from four U.S. states, regarding including students with a range of diagnoses who used AAC in their classrooms. All but two of the participants had taught only one student who used AAC. The teachers stated that they enjoyed the experience of including these students in their classrooms and that this led to them wanting to improve their teaching practice. Teachers reported that a difficulty associated with including these students was the extra time required to learn to use the AAC system, and to plan how to include these students in activities across the curriculum.

Finke, McNaughton, and Drager (2009), followed on from Kent-Walsh and Light (2003), by examining 11 US general education teachers' perceptions around including students who use AAC and who had a diagnosis of ASD. While some of the challenges that teachers reported related to the diagnosis of ASD rather than the use of AAC, teachers also reported some similar experiences to those in Kent-Walsh and Light (2003). Working with students who used AAC

helped the teachers to improve their teaching practice for all their students although they needed extra time to plan and collaborate around these students. Teachers also reported that parents could be demanding and suggested that this was because they had to act as advocates for their child. Teachers reported that including these students was a positive experience and identified that while there would always be room for improvement around the inclusion of these students, a teacher's positive attitude was the key feature that defined the experience. The positive perception of inclusion by teachers in Finke, McNaughton, and Drager (2009), differs from that of teachers in other studies (Kent-Walsh & Light, 2003; Myers, 2007). The teachers in the former study viewed inclusion as their responsibility as teachers of all students in their class rather than as a requirement imposed upon them from the outside. The authors suggested that this view contributed to the teachers' positive attitude. It should be noted that this study also only represented the views of five teachers, who may have been motivated to participate due to their positive experiences including students who used AAC.

Supporting AAC use in educational contexts.

Myers (2007) investigated the implementation of AAC for four students in the USA. This study used an action research design to examine strategies to support elementary school students' use of AAC. Classroom teachers in this study were often not able to attend meetings around the student with AAC due to lack of release time which the authors suggested contributed to the lack of effective implementation of AAC strategies in the classroom. The authors also suggested that this lack of time to meet with other professionals and to be educated around students'

AAC systems and how to support students in the classroom, contributed to teachers' negative attitudes to the AAC systems. A lack of understanding around AAC also contributed to some teachers suggesting that it was preferable to target the student's speech rather than implementing AAC.

In Finke, McNaughton, and Drager (2009), teachers reported that they found the use of a "push-in" model in which the student participated in the same lesson as the rest of the class with appropriate adaptations, more effective than a "pull-out" (withdrawal) model to support children using AAC. In the "push-in" model students received all their support in the general education classroom rather than individually. This is similar to the model advocated in Kurth et al., (2015), which identified that rather than using a withdrawal model, students with disabilities were able to receive effective individualised support within the general education classroom.

Calculator (2014) looked at the effectiveness of different modes of AAC for students with Angelman's syndrome and found that inclusive settings were associated with higher levels of acceptance of high-tech AAC systems by these students. The authors suggested that recent developments in technology have led to an increased acceptance of technology in general and that inclusive settings were associated with more positive perceptions of high-tech AAC (Calculator, 2014).

Calculator and Black (2009) sought to identify best practices associated with including students who use AAC in general education classrooms. Based on comments from educators, the researchers suggested the general and special education curricula be aligned so that students with complex communication needs could be fully included. As in Kent-Walsh and Light (2003), and Finke, McNaughton, and Drager (2009), this study identified the importance of allowing teachers extra time for planning. This study also identified the importance of targeting skills that students had multiple opportunities and reasons to use functionally and which supported successful engagement in the general education classroom (Calculator & Black, 2009).

The researchers suggested an inventory of best practices for use with students who use AAC which includes the following components:

- Allow parents to communicate their preferences regarding content of their child's AAC programme and establish common ground between teachers and parents.
- Examine the student's current programme and how it compares to current best practices.
- Support AAC services to be delivered in the context of the general education classroom (similar to the "push -in" model advocated in Finke, McNaughton, and Drager, (2009)).
- Measure change in the AAC programme over time.
- Track the impacts of broader systems change efforts in schools, school districts and further afield.

Calculator and Black (2009) highlighted different areas that need to be addressed including: promotion of inclusive values in the school, collaboration between team members, family involvement and choices around what to teach. While it is now accepted that students who use

AAC can be successfully included in the general education classroom, research has identified that barriers to this continue to exist.

Barriers.

In Kent-Walsh and Light (2003), all of the general education teachers reported barriers to the inclusion of students who used AAC in their classrooms. Barriers associated with the school and the team around the student included:

- The physical setup of the classroom including difficulties with accessibility and lack of space for students in wheelchairs.
- Teachers not being actively involved in planning for students (as schools tended to follow the legal requirements for including these students rather than actively working towards their educational needs).
- Large class sizes and time pressures for teachers.
- Lack of effective collaboration and communication among teams. Teachers reported a lack of consistent methods of sharing information and that they were often not included in the goal-setting process for students in their class.
- Lack of support from home. Teachers reported that they often had different expectations of students than their parents and that students often did not use their AAC systems at home.
- The use of educational assistants who did not support the student appropriately. High staff turnover was associated with a lack of consistent support for students.

Teachers reported some barriers related specifically to the students using AAC and their interactions with classmates which included a mismatch between the interests of the student using AAC and classmates' interests (especially as students got older), difficulties facilitating interactions between students using AAC and their classmates, and the limited communication skills of the students using AAC. Teachers also reported that students lacked motivation to use AAC systems and sometimes used inappropriate behaviour such as hitting or pushing to gain someone's attention. An additional barrier was the school attendance of the students using AAC. Teachers reported that these students were frequently late or absent which was a barrier to their attempts to provide consistent and inclusive classroom programmes. Participants also identified barriers associated with themselves as teachers, which included their own lack of training and skills around AAC, and their lack of sufficient time to learn how to use the student's AAC system, and to plan classroom accommodations. Teachers also identified that they had difficulties modifying some curriculum areas and with the use of standardized tests to measure students' progress. There were also barriers around the AAC device itself as the technology had limitations and frequently broke down. Teachers reported that it was helpful if students had some other ways to communicate such as manual signs that they could use if their device was not available.

In Iacono and Cameron (2009), SLTs in Australia discussed barriers associated with the implementation of AAC. These barriers were reported as including negative family attitudes to AAC and lack of time. This study interviewed SLTs rather than teachers, who reported, like

teachers in Kent-Walsh and Light (2003), that successful implementation of AAC required significant time which was not always available due to their caseload size and busy schedules.

Bailey et al., (2006b), discussed perceived barriers to effective AAC-device use in their study of family perceptions of AAC-device use for junior and high school students in the USA. As in Kent-Walsh and Light (2003), barriers included limitations around the AAC device itself including unreliability, limited vocabulary capabilities, and issues with programming. The time involved in programming the AAC device was another barrier identified by families as they often had to take primary responsibility for this themselves. Training was also identified as a barrier, particularly with high-tech devices. As in Myers (2007), lack of training was associated with less effective use of the device. Another significant barrier identified in this study was ineffective teaming.

In McNaughton et al. ,(2008), seven parents of individuals with cerebral palsy in the USA participated in a focus group on the benefits and challenges associated with learning to use AAC. Parents described several barriers that limited the teaching and learning process for students and their families. As in previous studies, (Bailey et al., 2006b; Kent-Walsh and Light, 2003) these barriers included frequent technical problems. Other barriers specifically associated with cerebral palsy included students only being able to access the device when seated in their wheelchair, and having a lack of appropriate access methods for their device. In addition, parents also mentioned challenges around the use of the device in the community, including negative attitudes of others and lack of opportunities for peer interactions. Parents in

this study also reported that there was a lack of trained professionals available to support their children in the school setting which meant that they, like parents in Bailey (2006a), had to assume the bulk of the responsibility for programming their child's device.

Yun-Ching Chung and Carter, (2013) looked into how peer interactions could support the use of AAC by two US students with an intellectual disability. Barriers hindering students use of AAC in this study were identified as:

- Students having inconsistent access to their device (as in McNaughton, et al., 2008).
- Lack of training regarding effective strategies to facilitate peer interactions (as in Kent-Walsh and Light (2003)).
- Barriers relating to the attitudes, skills and knowledge of peers and professionals, for example that teacher aides were not always available to attend meetings due to scheduling conflicts and were thus not always well equipped to support students effectively.

This study identified that intentional intervention is often required to support students with severe disabilities to interact with peers and that without this support students although present in the classroom may be socially isolated rather than effectively included (Yun-Ching Chung & Carter, 2013).

Sutherland, Gillon, and Yoder (2005) conducted one of the few studies that have investigated AAC use in New Zealand. This study reported on a survey of New Zealand SLTs regarding the provision of AAC services, along with the professional needs of SLTs relating to AAC services,

and obtained demographic information about AAC users. Barriers to AAC use identified by SLTs in this study included that parents wanted their child to speak rather than to use AAC (similar to comments from parents in Iacono and Cameron (2009)) and a need for more specialized AAC support teams. SLTs commented that AAC was only a part of their wide caseload and that they found it difficult to keep up to date with the latest developments.

The barriers to the inclusion of students using AAC mean that extra support is needed for teachers in order to minimize these barriers and effectively include these students in classrooms. Although increased understanding means that teachers now increasingly view students with disabilities as capable learners (Jorgensen et al., 2007) there are still constraints upon teacher's ability to collaborate effectively (Bacon & Causton-Theoharis, 2013). Some of these constraints relate to the education system itself, some to individual schools and some to the attitudes of the team supporting the student with special education needs.

Collaborative teaming.

Involving families in decision making has been identified as important to collaborative teaming both in New Zealand (Ministry of Education, 2015a), and in overseas research. In Bailey et al., (2006a) and McNaughton et al., (2008), families reported that some AAC device decisions were made by school professionals without consulting the device user or their family. This lack of collaboration meant that, as in Kent-Walsh and Light (2003), there were differences in expectations between the family and school. Ineffective teaming also contributed to stress for

some parents who, rather than feeling supported by a team, viewed the implementation of their child's device as their primary responsibility.

Professionals and educators engaging successfully with parents can be the key to the success of a child (Finke et al., 2009). Several studies have looked into what constitutes effective collaboration with families. Angelo, Jones and Kokoska (1995) and Marshall and Goldbart (2004) both identified that as students who use AAC are extremely diverse and the needs of each family are different, services need to be individualized. Parents and school professionals also have different experiences of children with disabilities, which need to be acknowledged in order to develop a shared understanding of the needs of the child (Bacon & Causton-Theoharis, 2013). When collaborating with families around AAC, professionals need to take into account and respect the racial, cultural, ethnic and socio-economic diversity of families in order to minimize disparity between families and professionals (Angelo et al., 1995; Goldbart & Marshall, 2004).

Another important component to schools achieving inclusion for students with disabilities is effective collaboration with itinerant personnel such as SLTs (Jorgensen et al., 2007; Kurth et al., 2015; Soto et al., 2001b). Soto et al., (2001b) used a focus group methodology to identify factors that were necessary to successfully support students with AAC in one school district in the USA. All participants identified that the ability to work collaboratively was a critical skill for providing support to students using AAC in an inclusive classroom setting. Participants emphasized the importance of regular meetings where all team members had the opportunity to contribute to the discussion of strategies to best support the student's progress towards mutually identified goals. Also identified was the importance of involving parents in the process

from the beginning and ensuring their full participation in all aspects of the intervention.

Participants identified the need for all members of the collaborative team around the student to be viewed as of equal importance and their contributions to be valued equally. Other factors that were also identified as contributing to students' success were team members' knowledge of the curriculum and ability to make appropriate adaptations and modifications, the development of peer support strategies in the classroom and effective technical support for the AAC system.

Participants also identified the need to develop a supportive "community" around the students using AAC by using co-operative learning strategies, team teaching between special and general education personnel and effective sharing of information. Further, it was recognised that general and special education team members need to work together to support all students using activities that promote the appreciation of differences and advocate for inclusive education for all, not just the student with special education needs. This aligns with the principles of UDL, a key direction within education in New Zealand currently (Ministry of Education, 2017).

In addition to Soto et al., (2001a) several other studies have identified effective teaming as a primary facilitator of AAC device use (Bailey et al., 2006a; Bailey et al., 2006b). In Bailey et al., (2006a), participants described effective teaming as occurring when families felt that they were an equal member of the team and were included, respected, and acknowledged for their expertise regarding their children. The views of the parents in this study are similar to the views expressed by New Zealand parents in the Ministry of Education's Engagement forum (Ministry

of Education, 2015a) which indicated that New Zealand parents want a more holistic, collaborative approach in which parents and education providers act in partnership.

In the Engagement forum (Ministry of Education, 2015a) parents also indicated that they wanted appropriate information and training to support their participation in collaborative teams. This is similar to Soto et al., (2001b) in which the authors suggested that providing parents with appropriate training and support with programming, and communicating frequently about any difficulties with the AAC system, could help to reduce the stress associated with the increased demands the AAC system might place on parents. Bailey et al., (2006b) identified that effective teaming required time, a shared value of the importance of communication skills, administrative support to facilitate meetings and equipment requirements, and support from all staff involved with the students. Participants identified the value of open communication within the team with the SLT taking on the role of informal team leader empowering teachers to become “effective facilitators of AAC” (Bailey et al. (2006b) p. 150).

Team collaboration can be the pivotal factor in successful AAC use in general education classrooms with the SLT playing an important role in facilitating this collaboration (Bailey et al., 2006b). Research has identified multiple other factors which are required to support collaboration including regular meetings, open discussion, developing partnerships with families, respect and equality within teams, team member’s knowledge of the curriculum and ability to make adaptations, appropriate technical support for AAC and effective methods for sharing information (Chung & Stoner, 2016).

Chapter summary

This literature review examined key aspects of team collaboration to support the participation of students using AAC to communicate in the general education classroom. All of these elements have influenced the research question and design of the current study which will be discussed in the following chapter.

Chapter 3

Methodology

This chapter outlines the methodological approach used in this research study. It begins by outlining the research question and goes on to explain the rationale for adopting a qualitative approach, the different research methods considered and the approach that was selected. The study procedures and methods of qualitative data collection are outlined, as are the processes of recruiting participants. Details are provided of the ethical considerations. The methods used to analyse and interpret the various types of data that were collected are also explained.

The research question

How can collaboration between speech language therapists, teachers and families support communication for students using Augmentative and Alternative Communication (AAC) Systems in an inclusive classroom setting?

Qualitative research methodology

A qualitative research methodology was selected for this study as this would allow the researcher to study processes and practice in their natural setting. Use of a qualitative methodology aligned with the researcher's work as a speech language therapist (SLT) employed by the Ministry of Education (MOE), as this research was carried out in schools where the SLT

provided communication support for students. Qualitative researchers can allow the voice of those who are studied to be heard (Denzin & Lincoln, 2011) which was of key importance to the researcher. Rather than presenting results in a statistical form, she wanted to be able to share the participants' specific perspectives on their experiences and use these lived experiences to help describe the collaborative process.

Research Design.

An action research methodology was initially selected for this study as it aligned well with current practice at the MOE where SLT's roles were increasingly focused around supporting teams to work towards mutually agreed goals (Ministry of Education, 2014a). Action research involves problems that are real to the research participants (Denzin & Lincoln, 2011) and consists of a continuous process of acting, reflecting on the action and then acting again in a different way, in light of what has been discovered (McNiff & Whitehead, 2010). Action research also aligns with MOE initiatives around building adult capability, as the researcher acts as a co-participant facilitating the development of the skills and capability of the team (Ministry of Education, 2014a). Rather than the SLT being in the role of an expert, the SLT's role is that of a team member, working together with other team members to support the student. The SLT acknowledges the other team members as each bringing their own perspective and expertise to the team.

While the researcher identified action research as the desired research approach, the realities of conducting this research as part of her work as a SLT supporting students' communication in

the classroom meant that this was not realised. A key aspect of action research is that it is an iterative process in which participants engage in a process of acting, reflecting on these actions and then acting again (McNiff & Whitehead, 2010). One of the students moved classrooms after the initial interviews had been completed and the new members of the teaching team had not been part of the initial recruitment process, interviews and team meeting. This lack of continuity of team members meant that the researcher was not able to carry out the iterative process necessary for action research with this team. Due to these difficulties, the researcher chose instead to present her data using a case study design.

Case study design

A case study consists of an empirical inquiry describing in detail an investigation of a phenomenon in its natural context where the boundaries between the phenomenon and context may not be clear (Yin, 2014). The case study seeks to describe and interpret the experiences of a specific group of people in a specific place, over a specific period of time and can involve collecting and analyzing multiple forms of data to describe experiences and identify themes (Yin, 2014).

The aim of this study was to describe key elements of team collaboration supporting two students using AAC in an inclusive classroom setting, through the use of multiple methods of data collection. Rather than separating the participants from the context, the real-world context of the inclusive classroom was identified as an important component of this study. The

research required a design which could accommodate the flexibility required of the inclusive classroom setting and enable the different perspectives of the participants to be represented. A case-study research design was selected as best fitting these requirements.

Case-study research has different applications including providing explanations of causal links which are too complex for survey or experimental methods and describing an intervention and the real-world context in which it took place (Yin, 2014). Case studies can be largely descriptive, as in this case where the case consists of the school team around the student and the different perspectives of team members are described.

A major strength of case study data collection is that it allows for the opportunity to use many different sources of evidence (Yin, 2014). These different sources of data provide a “thick description” (Ponterotto, 2006) by providing multiple opportunities to describe the participant’s voice. Using multiple sources of evidence can increase the quality and trustworthiness of a study (Amankwaa, 2016) by ensuring that a participant’s perspective has been articulated accurately, as this is obtained from several sources rather than a single interview.

Although case study design is recognised as a method of carrying out empirical research, it has been criticised as lacking systematic rigour, producing findings that are difficult to generalise and large amounts of data that can be unmanageable and time-consuming (Yin, 2014). In order

to mitigate these concerns, this chapter outlines the details of the systematic procedures and data analysis framework used in this study.

Participant recruitment

Participants were recruited from schools where there were students using AAC to communicate and receiving a service from the researcher in her role as a SLT. Criteria for inclusion included that speech was not the student's primary mode of communication and that the student was attending a mainstream school. As school teams were free to withdraw at any time, the researcher identified that in order to ensure completion of her Masters research; it was preferable to have more than one team involved.

The school principals were contacted by a senior member of the MOE Practice team to gain initial consent to conduct the research. Permission to approach parents and teachers was sought first from the school principals, who were provided with an information sheet (see Appendix 2) by the MOE Practice team member and were given the opportunity to ask questions about the research. Once permission from the principals was obtained, the students, their teachers, teacher aides and parents were approached and invited to participate in this study (again by a member of the MOE practice team). Participants were provided with an information sheet (see Appendix 2, 3 and 4) and were able to ask the MOE practice team member questions about the research.

Once participants had given the MOE practice team permission by email, the researcher then met with all participants individually to complete the written consent document (see Appendix 7) and explain the research process. At this time participants could also ask questions of the researcher herself. Parents of the students involved in the study were also provided with a script that they could read to their child (see Appendix 6) to explain the content of the research study and obtain their child's consent.

The students identified were all receiving funding through the Ongoing Resourcing Scheme (ORS) which provides support to individual students with a high level of additional needs to enable them to be present, participate and learn (Ministry of Education, 2014b). ORS provides funding for specialist teacher time, teacher aide support and additional specialist support including support for communication from a MOE SLT. As part of their ORS support these students all had an Individual Education Plan (IEP) which had been developed by the team supporting the child and which detailed the student's individual goals (Ministry of Education, 2015b).

Participants

Two school teams supporting students using AAC to communicate in the mainstream classroom setting were recruited. At the beginning of the study, the researcher already knew all members of both these teams well, as she had been providing a SLT service for both these students at school for approximately two years.

Team One: Amelia's team.

Amelia was an 8-year old girl with a rare genetic neurological and developmental disorder who mobilized using a wheelchair and had very limited voluntary control of her body. Amelia was able to make some sounds to indicate when she was happy or distressed, but was not able to speak any words. Amelia communicated using a high-tech communication device activated by eye-gaze and low-tech communication tools (including a PODD¹ book) which she navigated through using partner-assisted scanning. Before enrolling in her local school, Amelia attended a specialized early intervention centre for children with complex needs.

Amelia's mother (Nellie) had an in- depth knowledge around supporting children with complex needs as she worked with these students in her job as a teacher in a Special School. Nellie was a strong advocate for Amelia and was proactive in ensuring that the team had the appropriate resources available to support her participation. At school, Amelia was supported by an adult at all times. This was either a teacher aide (Shirley) or her specialist teacher (Ruby), who worked with Amelia for five hours per week. Amelia's classroom teacher (Amy) was also involved with supporting Amelia in the classroom, planning, and implementing her programme.

While Shirley and Ruby had been supporting Amelia at school for two years, Amy had only been her classroom teacher since the beginning of 2017. All members of Amelia's school team had significant experience supporting children with additional learning needs and both Shirley and Ruby had previous experience working with students who used AAC.

¹ PODD stands for Pragmatic Organisation Dynamic Design and is a communication system designed by Gayle Porter for use with people with complex communication needs.

Amelia's team had experienced ongoing technical difficulties with her high-tech communication device which had impacted on Amelia's ability to communicate in the classroom, as the device was her only means of independent communication. The team had shared that the difficulties with the device had been very frustrating for Amelia and for them. When the device was working Amelia was able to use it to share her feelings, e.g. to comment "fun" during an activity that she was enjoying. When she was upset, Amelia quickly became disregulated and at these times she was not able to use the device to communicate what had upset her.

Amelia and Shirley had a very strong relationship and Shirley used multiple low-tech means of communication to support Amelia e.g. asking questions to which Amelia could answer "yes" or "no" by eye-gazing to the appropriate card. Shirley and Ruby also used an alternative pencil and a core word flip chart to support Amelia to share her ideas at writing time. Using these different low-tech supports enabled Amelia to participate in classroom activities including writing, maths and reading.

Team Two: Emily's team.

Emily was a 10-year old girl with a genetic condition resulting in a combination of medical problems including defects of her palate. Emily had undergone multiple operations to attempt to repair the deficiencies in her palate with only limited success. As a result of velo-pharyngeal insufficiency the intelligibility of Emily's speech was significantly reduced and she had been provided with an AAC device (an iPad with a communication app) by TalkLink.

As Emily had grown older her confidence to communicate had increased and she was eager to communicate with others (both adults and peers) at school. Emily preferred to communicate

verbally rather than by using her communication device, even though others could find her hard to understand particularly in the busy modern learning environment where she spent most of her school day. Emily's teacher (Lucy) and teacher aide (Susan), both commented that Emily lacked awareness of how difficult she was to understand; for example, Emily frequently volunteered to present at assembly something which Lucy and Susan felt would be very difficult for her to do verbally.

Emily did not use her AAC device to communicate at home as her family, especially her Mother (Allie) had grown accustomed to Emily's speech and could generally understand her. Allie commented that when she is not understood Emily tended to give up and say "don't worry about it", something that Lucy had also observed in the classroom. Persisting when there was a communication breakdown or when she had a complex message to share was something that had been identified as a goal by both home and school.

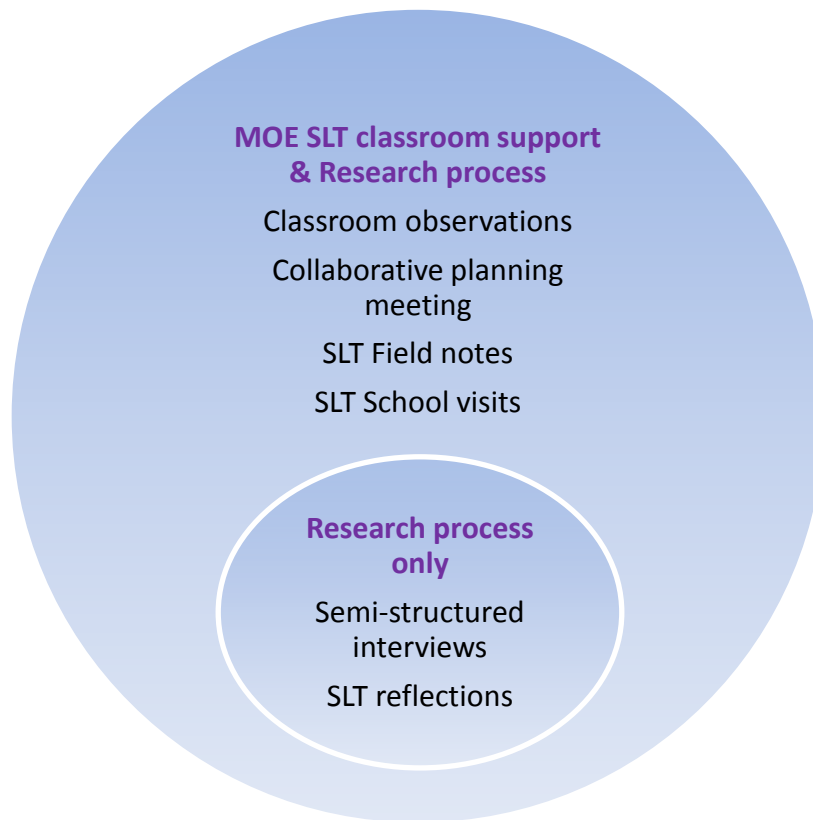
Emily had ORS² funding which provided specialist teacher (Julie) and teacher aide (Susan) support for Emily in the general education classroom. Rather than Emily's teacher aide support being used for her individually the teacher aide worked with Emily and a small group of peers. For example, some of this funding was used to plan a maths group at Emily's level in which she and several peers participated. While there were several students with ORS funding at Emily's school and her team were experienced in supporting children with additional learning needs, Emily was the only student at her school that used AAC and this was her school team's first experience supporting a student who uses AAC.

² Ongoing Resourcing Scheme which provides funding for Specialist Teacher and teacher Aide time to support students with significant additional learning needs.

Researcher.

Within qualitative research it is important that a researcher engages in reflexivity and acknowledges the skills, biases and values that influence his or her positioning within the study (Jasper, 2005). The researcher had been employed as a SLT by the MOE for the past six years and during this time had worked with several school teams supporting students using AAC to communicate. This experience led the researcher to recognize the importance of AAC in supporting students who are unable to communicate verbally to have their voice heard and so to participate fully, and provided the impetus for this study. During the course of the study, the researcher took on dual roles of MOE SLT and collaborative team member combined with the role of researcher. These dual functions are explained in Figure 1.

Figure 1: Explanation of researcher's roles



Case Study: Unit of Analysis

The boundaries of the cases included in this research were defined as the school team around the students using AAC which included the student, the student's mother, the classroom teacher, the ORS specialist teacher, the teacher aide and the SLT. For Emily, this meant that all members of the team supporting her at school were included in this study. Amelia's school

support team had additional members including an occupational therapist, physiotherapist and a SLT from TalkLink who were not included in this study.

Procedures

The procedures for this study included interventions that would have typically been provided by the SLT in accordance with the MOE Specialist Service Standards (Ministry of Education, 2015b) and additional elements which were part of the research process only.

This study was conducted over term two and weeks one to seven of term three of the 2017 school year. It consisted of 3 phases, as illustrated in Figure 2. These phases have been labelled in accordance with the MOE Service Pathway (Poutama) (Ministry of Education, 2015b).

Figure 2: Study phases and timeframes.



Engagement, assessment and analysis.

The initial semi-structured interviews with all participants took place in weeks one to four of term two, 2017. These interviews were conducted at a location of the participants' choice and were between 20 minutes and an hour in duration depending on the amount of information that the participants chose to share. The purpose of these interviews was to obtain each team member's perspective of the student's communication skills and identify what changes they would like to see, and the people who they saw as necessary to support this change.

This phase also included initial classroom observations conducted by the researcher to ensure that she had an up-to-date knowledge of the student's current communication skills and the different modes of communication used by the team around the student. During the classroom observations the researcher also noted how the school team supported the student's inclusion in classroom activities, so that she was able to participate in discussions around this and support the team to identify ways in which this could be enhanced. Following the school visits, the researcher completed field notes documenting her observations as she would usually in her role as MOE SLT.

Programme planning and intervention.

The programme planning and intervention phase took place from week five term two, to week six term three. At the beginning of this phase, the researcher met with each school team to discuss the student's communication and specific areas of SLT support (in her role as MOE SLT). These meetings took place at school and were for an hour's duration. Nellie was not present at the meeting with Amelia's school team as the school chose to schedule this on a day

when Amelia had a hospital appointment, as this meant that Ruby and Shirley were available to meet without the school having to pay additional staff to release them. Following each meeting, the researcher formatted a plan for the student (see Appendix 9 and 10) which she sent by email to all team members for their feedback. This plan was then added to each student's MOE file as documentation of SLT planning.

During this phase, the researcher visited the schools fortnightly in her dual capacity as MOE SLT and researcher to observe the students in the classroom and problem-solve with the school team how to support their communication in the context of their daily programme. During these visits the researcher/SLT also followed up on the areas for support identified at the planning meeting. These visits were collaborative in nature and the researcher/SLT needed to be responsive to any new issues arising. The content of these visits was documented by the SLT in her MOE field notes. The SLT also maintained email communications with both school teams, as she would typically in her role as MOE SLT, to ensure that all team members were informed of discussions that took place on her visits to school.

Amelia moved to a new classroom in term three and had a new classroom teacher who had not been involved in the initial interviews and collaborative planning meeting, and so the research process for her team finished at the end of term two. As Amelia was moving classes the focus of her specialist support for the last weeks of term two was around supporting this transition rather than the goals which had been identified at the collaborative planning meeting.

Review, follow up and reflection.

In this phase, the SLT in her capacity as a researcher interviewed all members of Emily's team again. In her dual role as SLT and researcher she also visited Emily at school and discussed the progress that she had made towards the goals identified at the collaborative planning meeting with Julie and Lucy, and what might be the appropriate next steps. The contents of this discussion were recorded on Emily's plan (see Appendix 9) and in the SLT's MOE field notes.

Data collection methods

The researcher used multiple sources of data in order to provide a rich description of the support process for each individual team. The use of multiple sources of evidence allowed for corroboration of participants' perspectives through comparing and contrasting evidence obtained from different sources. During all three phases of the study, the researcher also kept notes in a reflective journal as part of the research process.

Interview methodology.

Interviews are frequently used as a data collection method in qualitative research and have been identified as one of the most important sources of case study evidence (Yin, 2014).

Interviews were chosen as a method of data collection as previous research has suggested that they are well-suited to obtaining insights into the views of families of children who use AAC (Ball, Müller, & Nelson, 2014). Interviews were identified as preferable to a questionnaire as they would allow team members to describe their experiences in detail (Goldbart & Marshall, 2014). An interview is also flexible as the interviewer is able to observe the participants'

responses and adapt to these by explaining questions if they are not fully understood, or asking for additional information when a response seems incomplete (Ary, 2013). An advantage of interviews is that the personal nature of the interview can increase the likelihood of participation. Interviews typically have a higher rate of participation than other means of data collection (such as questionnaires) which lack this personal element (Ary, 2013).

The main disadvantage of interviews is that they can be time-consuming. The interviewer has to contact the participants and arrange to meet, travel to the meeting, conduct the interview and then transcribe it afterwards. As part of her MOE SLT role the researcher would typically meet with parents and teachers but these meetings would usually be shorter than the research interviews, and the SLT would take notes of key discussion points only, rather than recording and transcribing the meeting verbatim. The SLT would also be unlikely to meet with members of a school team individually but would seek to meet with them all together in the interests of time management.

Semi-structured Interviews.

Semi-structured interviews fall on the continuum between the completely pre-planned interview following a detailed questionnaire and an unstructured entirely open conversation. Semi-structured interviews were chosen as a method which would allow the researcher to learn from (rather than about) (Ball et al., 2014) the teams that she was working with and were conducted with a parent, the student's classroom teacher, their specialist teacher and teacher

aide. For Emily's team these occurred both at the beginning and at the end of the period of the study, for Amelia's team only initial interviews were completed as she changed classrooms following phase two.

The wider structure of the interviews was set by the researcher using a small number of predetermined questions (see Appendix 5) with the participants having scope as to what and how much to say on the given topic. The questions asked of the individual interviewees related to the larger research question and were designed to present the researcher as impartial and interested in the interviewee's individual perspective. The same interview questions were used for both the pre- and post-intervention interviews.

Digital recording and transcription.

Each interview was digitally recorded using the voice recorder function of the researcher's MOE smart phone. Following the interview, the recording was transferred to the researcher's lap top computer for transcription. All transcriptions were completed by the researcher herself.

Field Notes.

Field notes were collected of classroom observations, meeting with the team and of the researcher's reflections.

Classroom observations.

In case study research observations are often used to document the real-world setting of the case (Yin, 2014). During these classroom observations the SLT took on the role of participant-observer as this observation was conducted as part of her typical MOE SLT role in which she observed students communicating in the classroom setting, discussed this with the school team and attempted to facilitate the process of team collaboration to increase the student's active participation. The content of these observations was documented in the MOE SLT field notes. Following classroom observations, the SLT also emailed all team members to communicate any suggestions or discussion points arising from her visit, in order to ensure that all members of each team were kept updated.

Team meeting.

Following the initial interviews the researcher met with each team to discuss short-term goals for SLT support. These meetings were also digitally recorded and transcribed following the same procedures as the interviews.

Researcher reflections.

The use of reflective writing within the qualitative research process is another method of contributing to the trustworthiness of the study (Jasper, 2005) as this acknowledges and makes

visible the researcher's unique perspective and aids transparency. During the research period the researcher maintained a journal which documented her personal reflections on both the research process and the SLT support provided to the student and the team around them, as part of a process of professional inquiry. These reflections were included in the research evidence as they provided both data relating to the research question and an insight into the researcher's own assumptions and behaviour and how these may have impacted the research process (Watt, 2007).

Member checking

An electronic copy of the transcribed interview and team meeting was sent to each participant for verification of accuracy. Participants were asked to read and verify the accuracy of the transcription and to amend any errors. Participants were also reminded that they were free to request that any specific information be removed from the transcription. Following this, any required amendments were made by the researcher and a final electronic copy of the transcription was forwarded to participants for their verification. At this stage, participants were asked to sign an Authority for the Release of Transcript form (see Appendix 8) authorizing the use of the transcript of their interview and the team meeting in the study.

Data analysis procedures

Initially the researcher read through all the data to gain an understanding of the information as a whole. Following this, the researcher began coding the data following the selected process (DeCuir-Gunby, Marshall, & McCulloch, 2011) and creating a code book which was then used to analyse the data. Thematic Network Analysis (TNA) (Attride-Stirling, 2001) was then used as a means of organising and making sense of the data.

Development of the code book.

Codes consist of labels which are assigned to units of meaning within the data and are derived from theory, data and research goals (DeCuir-Gunby et al., 2011). Once identified, individual codes are then organised into a code book including an example and definition of each code (See table 1). This code book is then used as a framework to analyse interview data. Developing a code book is an iterative process as definitions are continually revised through repeated examination of theory and data.

Initially the literature review was analysed and a series of theory-driven codes were identified. Following this the interview and meeting transcripts, field notes of observations and intervention, and researcher reflections were also analysed and data driven codes were identified. The researcher then met with her supervisor to refine and clarify the codes and their definitions in order to finalise the code book.

The interview and meeting transcripts, field notes of observations and intervention, and researcher reflections were then re-examined and the data coded according to the final codes in the code book. At this point, some codes were collapsed together such as “parent as an interpreter” and “demands on the family” which were combined into the single theme “demands on the family”. The researcher then began the process of Thematic Network Analysis (TNA) (Attride-Stirling, 2001).

Thematic network analysis.

This involved rereading the quotes from the data within each code, identifying the underlying pattern that had led to them being coded in the same way and from these developing themes (Goldbart & Marshall, 2014). This resulted in the identification of specific themes known as basic themes; simple propositions which are derived from the data (Attride-Stirling, 2001). Basic themes with similar underlying constructs were grouped together into organising themes, from which thematic networks were developed. The organising themes were then grouped in order to reflect the main ideas of the over-arching global themes representing the key points from the data (Goldbart & Marshall, 2014).

Table 1: Example from the code book

Code	Description	Example from the data
Time-meeting	Time available for the team to meet.	"getting everyone together to discuss is always an issue"
Time-Support	Time available to support the child in the classroom	"if she had more one on one time...that would help" "Time is the biggest barrier...it's like all these tick boxes"
Time-Use of AAC	Time needed to support the use of AAC	"but we always seem to be running out of time for doing it"
Demands on the family	Demands placed on the family by having a child who uses AAC to communicate	"there is a lot more effort for me as her communication partner or even to facilitate communication with her".
Parent as interpreter	Parent taking on the role of interpreter for their child	"there is a risk that we become her interpreter all the time".

Ethical Considerations

Ethical approval for this study was obtained from Massey University's Northern Human Ethics Committee (see Appendix 1). This application outlined all the procedures and ethical considerations included in this study. Additional ethical approval was sought and granted by the Ministry of Education. As this study included children with communication disorders careful consideration was given to the ethical implications of research involving children and vulnerable populations.

Informed Consent.

Research which is carried out following ethical practices must ensure that participants are protected from any possible harm and that all participants provide their informed consent. Researchers must ensure that participants are provided with sufficient information about the aims and methods of the research to enable them to make an informed decision about their participation. Participants' informed consent was ensured through the use of an information sheet and a written consent form. Participants were given the opportunity to ask questions and to withdraw from the research study at any time without compromising the intervention they were receiving from the SLT.

As the participants were all known to the researcher prior to the study beginning, the researcher identified that there were potential issues of coercion around participant recruitment. In order to avoid this, schools were contacted by a senior member of the MOE Practice team rather than the researcher herself. This meant that participants did not have to discuss their consent to participate with the researcher herself until they had been given the information sheets, had the opportunity to ask questions of the senior member of the MOE practice team and provided their consent for the researcher to contact them directly.

Confidentiality.

To ensure confidentiality participant names were kept confidential and participants were given a pseudonym. All recordings and transcriptions were de-identified and labelled with a number rather than a name. All transcriptions were completed by the researcher herself.

Chapter summary

This chapter provided a description of the case study research design and the rationale for selecting this method. The context of the study was established through description of the study participants and the setting. This chapter also included comprehensive descriptions of the procedures and data collection methods and the data analysis frame work that was used. The ethics process and considerations have been detailed. Evidence has also been provided of efforts that were taken to ensure that the study was undertaken in a methodologically robust manner. The following chapter presents the data collected and provides a thematic analysis of participant's perspectives and experiences throughout the intervention process.

Chapter Four

Results

The aim of this study was to describe the key elements of collaborative team support for two students who used Augmentative and Alternative Communication (AAC) in inclusive classroom settings. This chapter presents the results of the two case studies. Following the data analysis procedures outlined in the Methods chapter three global themes Processes, Engagement and Enactment were identified. The global theme Processes relates to the systems, activities and procedures required to support team collaboration. Within this global theme four organising themes were identified: use of AAC supports, time, demands on the family and capacity. The global theme Engagement relates to participant perspectives, attributes and values regarding team collaboration. This global theme contains two organising themes; team engagement and team communication. The third global theme Enactment relates to successful AAC support for the two students and contains the organising themes child participation and student voice. Each organising theme (except demands on the family), then contains basic themes derived from the data. The relationship between these Global, Organising and Basic themes is explained in Table 2.

Table 2: Thematic networks

Global themes	Organising themes	Basic themes
Processes	Use of AAC supports	Student independence Team knowledge Advantages of high tech AAC Advantages of low tech AAC Technical difficulties
	Time	Time for meetings Time for in class support Time for AAC use
	Demands on the family	
	Capacity	SLT capacity School team capacity
Engagement	Team Engagement	Team collaboration Goal setting
	Team Communication	Shared expectations Relationships Roles
Enactment	Child participation	Inclusion Communication Partners
	Student Voice	Decision-making Student Confidence Student use of AAC

Processes

The global theme processes includes four organizing themes: use of AAC supports, time, demands on the family, and capacity.

Use of alternative and augmentative communication (AAC).

The organizing theme use of AAC contained five basic themes which were student independence, team knowledge, advantages of high-tech AAC, advantages of low-tech AAC and technical difficulties.

Student independence.

Independence was important for both the school teams supporting the students and their parents. For example, Nellie (Amelia's mother), described how Amelia was able to use her device independently to comment "this is boring" about an activity that she had done lots of times. Amelia's school team also talked about the importance of technology in supporting her to be independent and be able to do the same things as her classmates. For example, Shirley (Amelia's teacher aide), commented: "...what all her peers are using, they're publishing their own work and they're using technology...why can't she do that independently?"

Emily's school team identified that she has "become a bit dependent on people, whether it's her friends or a teacher aide" and that she could be reluctant to communicate with people that she did not know. The school team suggested that using her device could support Emily's communication in these situations. For example, Julie (Emily's specialist teacher) suggested that Emily be encouraged to use her device on school trips.

Team knowledge.

Training for team members to increase their knowledge of AAC was identified as important by both teams. Lucy (Emily's teacher) commented that training would be helpful: "...any form of training...to support that updating and upskilling..." While Susan (Emily's teacher aide) suggested that training might help her to increase Emily's use of her device: "I really need tips on what to do with her to get her to do it because she really doesn't want to..." Amy (Amelia's teacher), commented about her experience learning about AAC and how she had learned about the importance of using multiple tools to support students at different times: "...while the high-tech is one tool, it's not the only tool and this has been a learning experience for me but the more I learn, people say you can't have just one tool."

For Nellie, research and specialist support was important: "...all of the research and the people that are behind them...that's also PD and specialists from a global perspective as well..."

Amelia's school team also commented that the timing of training around AAC was not always ideal. For example, Ruby (Amelia's specialist teacher) commented: "They'll give you a device without any training on it, or the training is slower than the device, so then you're grappling with it and haven't really got any clue..."

Advantages of high-tech AAC systems.

Amelia's team shared that the high-tech system enabled her to communicate independently which she was otherwise unable to do and that this had helped them to realise her true capabilities. For example, Nellie commented: "I have learned a lot from watching her...scan and look and what she can actually do. So it raised my level of expectations a lot which has been

really good.” Amelia’s school team also identified that the high-tech system increased her engagement, something which they had not seen as much with other communication methods. For example, Shirley commented that Amelia: “liked the keyboard that was accessible” at writing time.

For Emily’s team, the high-tech system was not as important in supporting her independence, as Emily was also able to communicate verbally. For example, Lucy commented:

She has to go and get it, then she has to open it, then she has to find the right words, the right things to be able to communicate with it and I think that the effort that that takes (because she’s probably a wee bit lazy sometimes) that’s probably part of it.

But I also think that she just wants to communicate like everybody else.

Advantages of low-tech AAC systems.

Amelia’s team also acknowledged the importance of low and mid-tech AAC options to support communication both at home and at school and commented that simple strategies were sometimes the most successful. For example, Nellie commented:

I think it is really helpful that the staff wear the “yes” and “no” all the time. This has helped...to communicate and have her own voice and she has had a lot of opportunity to practice this. This has also been something that has been very easy to carry on with at home. It doesn’t really feel like “work” which may be why it is going so well.

Amelia’s team acknowledged that one of the advantages of the low-tech AAC supports was that they could be used in many different situations and that team members found them relatively

easy to use. Nellie commented about partner-assisted scanning that it had: “opened up a lot of communication with her ...” and was positive about how using a range of different tools supported her communication both at school and at home: “That’s what I love about the set-up...we have so many different tools all linked to communication”. Amelia’s school team also identified that consistency had contributed to the success of the low-tech system. For example, Ruby (Amelia’s specialist teacher), commented: “...because we’ve been so consistent with the low-tech, I think that’s brought us the biggest gains...she’s had that same low-tech system right from the beginning...”

Emily’s team identified the importance of multi-modal communication and that Emily was more motivated to use strategies that were similar to those used by peers. For example Allie (Emily’s mother) commented that Emily preferred strategies that were “... in the range of what everyone’s doing...” Allie also shared that Emily often used gesture to support others’ understanding “because the visual cues are something that she’s been using forever...” and were a strategy that Emily felt comfortable using.

Technical difficulties.

Technical difficulties around the high-tech device came up frequently with Amelia’s team. All of the team reported that the device did not work as well as they had expected and that because of this Amelia was not able to communicate her ideas consistently. Amelia’s teaching team reported that they often had to resort to trial and error when she was upset as she was unable to communicate what she wanted. Ruby commented that this often involved taking Amelia out of her wheelchair which took up class time that could have been spent on other things:

There might have been something else that we could have done that wouldn't have involved twenty minutes of hoisting...that would have been lost out of her day if she'd been able to say "can we go and do music?"

Shirley commented that when the device was broken there was no replacement available:

It's always an issue...there doesn't seem to be enough recognition of the importance of these devices for the students. If something goes wrong there's nothing for them. You might as well put a piece of tape over the child's mouth when the device isn't there. They can't have a voice, because it's broken and there's nothing to replace it...but at the end of the day there's still a student there that's lost their voice for a while...

For Emily's team, technical difficulties were not such an issue although Susan did comment that: "putting that complicated message into the device is not that easy either".

As well as technical difficulties with the hardware, Amelia's team also commented about the software: "keeping the system current to her. That's been really difficult with the system we have now". The team identified that the software could also be a barrier to Amelia sharing her message successfully. One of the school team considered that it was "too generic" and did not contain the specific vocabulary that was needed.

Time.

This organising theme came up frequently in discussions with both teams and contained the basic themes: time for the team to meet, time required for classroom support, and time associated with the use of AAC systems. Arranging time to meet together on a regular basis

was difficult for both teams. For example, Julie commented that getting everyone together to meet was always difficult. Amelia's teaching team also identified that lack of time was an issue and that this meant that they were unable to meet together regularly enough and that they did not have sufficient time to communicate effectively at handovers. Amelia's teaching team reported difficulties because she needed to be supported by an adult at almost all times of the day and so if team members were released to meet, the school had to pay an additional staff member to be with Amelia during the meeting. Emily's team did not experience these difficulties as she was able to be in class without individual support. Nellie also commented about a lack of time, she felt that when the team met this was rushed and that this sometimes meant that not everyone had an adequate chance to share their ideas: "When there's such a big team you have to stick to a format" rather than everyone having an opportunity to share their ideas.

The time required for classroom support was another basic theme. Both teams commented about the time needed to support students' participation, although as Amelia required significant adaptation of the curriculum, this was more of a factor for her team. Allie was realistic about the time available for individual support for Emily and commented: "If she had more one on one time...I think that would help. But in saying that I think that would help all the kids..." Whereas Amelia's teaching team commented:

We're up against time all the time...time is our biggest barrier. And because it's a barrier you stop thinking rationally, it's like all these tick boxes, you've got to get milk done, you've got to get to the bathroom, you've got to factor in rest time...

Amelia's teaching team also commented that "the amount of time that she is actually available for learning is actually quite short" due to the extra time taken around daily routines. This meant that people often felt rushed trying to keep up with the pace of the rest of the class. Although Amelia's teaching team identified that time was a constraint they also identified that this was something that they needed to find solutions for themselves. For example, Amy commented: "You know, I want to stop saying 'there's not enough time' because that's not what it's about, it's about utilizing the time..."

The extra time around AAC use was another basic theme that emerged from the data. Julie commented that she found it difficult to find the time to use Emily's AAC with her in the classroom: "Certainly I can, or the teachers can, but often there's not the same amount of time whereas the teacher aide ...is very good at showing her...this is what you do." The school team felt that the extra time and effort needed to use the AAC device could be a contributing factor to Emily's reluctance to use it: "I think part of it is that it doesn't go fast enough for her". The SLT noted in her reflections that rushing and being impatient was part of Emily's personality and that she tended to give up quite quickly when she could not find the vocabulary that she wanted on her device. The SLT reflected that this may have influenced the school team's perceptions of Emily's use of her device.

Amy also commented on the extra time that was needed around AAC for Amelia:

We have to be mindful of the amount of time an activity could take...for it to be achievable and enjoyable otherwise you're stopping halfway through and that's not a

very nice message for the child is it? When we've got to stop now but they've got more to say...

Everyone in Amelia's teaching team commented that time was a barrier to Amelia's ability to make choices. For example, Shirley commented that: "time is the biggest barrier to allowing...to have a choice and input". The team identified that ideally they would like to give Amelia a choice as to which AAC system she would like to use but that there was not time available for this when she arrived at school in the morning. Amy commented that: "the conversations between the teacher and the other children are so fast-paced that there isn't that time to allow...to be included..." Amelia's school team also identified that as the time that she was actually available for learning was less than her peers, the team needed to be mindful that she might need to work on things for a longer time than her classmates. For all Amelia's team, the extra time taken combined with frequent technical difficulties influenced their attitude to the high-tech device. For example, one of the team stated: "it takes a long time and when you have problem after problem I feel I'm nowhere near as engaged with it at the moment as I used to be".

Demands on the family.

Both mothers shared that supporting their child's communication placed additional demands on them. Allie commented that as Emily was one for four children "it does get lost some times" and:

I think she's quite aware that she takes a bit more time than other people....and I think she's trying to not (especially more so at home) be a pain and take up unnecessary time. Which is kind of sad.

Nellie commented that "there is a lot more effort for me as her communication partner" and that because a lot of Amelia's communication was dependent on the availability of a skilled partner there was a risk that family members "become her interpreter all the time". Nellie also shared that making decisions and coping with changes around AAC systems was an added demand on the family.

Capacity.

The organizing theme capacity contained two basic themes: SLT capacity and school team capacity. Emily's teaching team identified that the SLT having the capacity in her role as MOE SLT, to spend time working with them on the implementation of a programme would be helpful. For example, Lucy commented: "you showing us or training us how to do that properly...so that it's done the best we can. Not just well here's a programme and I suppose this is how we do it..." While the teaching team identified that training would be helpful, SLT field notes revealed that organising this training was not easy as due to last minute changes in the classroom programme, the school team were not always available when the SLT visited. The SLT's reflections on the support provided to Emily's team highlighted the impact of multiple goals identified by the team: "...setting too many goals ...means the SLT is unable to follow up on all of them in a timely manner". Amelia's team also identified the importance of training and identified that providing this was not solely the role of the MOE SLT. For example, Shirley talked

about a valuable training that they attended at a Special School: "... it was a first class training. I think that's all you need for it as well. I don't think ...in terms of using it, you did not need any more than that day."

SLT field notes of the support provided for Amelia's team identified that a lot of SLT time was taken up with discussions relating to things other than supporting communication, for example her transition to a new classroom. The SLT also noted that she had spent significant time following up by email the actions that were discussed on her visits to school (like arranging for an iPad that had been damaged to be replaced). The SLT also reflected that Amelia's school team had a number of questions relating to her support which the SLT had not been able to answer. Some members of her school team commented that they would have liked to have had an expert available to answer their specific questions: "... we absolutely could do with somebody to just email and say...look, I don't know where we're going with that". While they identified that this was the ideal they also recognized that that there was no one person who could fulfil this role: "it would be useful to have somebody ...on the other end of the phone, but there isn't is there?"

School team capacity came up frequently with Amelia's team. At the planning meeting, the team commented that when Amelia was participating in a small group activity like reading, music or cooking, two adults were required; one to run the group and one to support Amelia's participation. One member of Amelia's school team also commented that they found it stressful trying to keep up with the pace of the rest of the class:

And thinking 'Oh no, what if the teachers think we're not actually doing anything today?' ...because everything else gets in the way...we haven't actually done anything of the mahi, on the board. And you look and you think 'ohhh' we've not actually done any of that, we've not done anything, so you feel pressured...

For both teams, the demands of managing the whole class impacted on the classroom teacher's availability as they had to manage multiple groups of children and deal with behaviour issues. Amy commented that she really valued the time to just observe in class and to "reflect on my own practice" but that this time was rarely available. The school team identified that ideally when Amelia was included in a group, one team member would facilitate the group and one would support Amelia to participate. Amy identified that as the classroom teacher typically took on the role of facilitating the group; this meant that she was not able to engage with Amelia in the way she would have liked: "if I'm taking that group then I'm not engaging ...in the way that I need to..." All the school team acknowledged that this meant that Amelia was often supported by a teacher aide during classroom activities.

Whereas Amelia's school team identified that she required individual support in order to participate successfully, Emily's team was conscious that receiving individual support could lead to her not attempting things independently. Lucy commented that: "That's a little bit of the problem with having the teacher aide too close because she will then wait ..." All of Emily's team identified that if she could, Emily would try to get an adult to help her and that supporting her to develop her independence was a priority.

Engagement

The global theme engagement encompasses team members' relationships, communication and contributions as well as how the team processes supported the students to engage and participate in social and learning activities. The organising themes that emerged within this global theme were team engagement and team communication.

Team engagement.

The organizing theme team engagement contained two basic themes which were: team collaboration and goal setting.

Team collaboration.

The basic theme team collaboration included perspectives about the importance of team work and how the team could work together effectively. Both students' teams recognized the importance of working together to support the student and that the effectiveness of the team could impact on outcomes for the student. For example, Shirley commented "...if you haven't got the team around the child...to actually do the communication ...". Both teams also identified the importance of all members of the team being involved in the collaborative process. For example, Allie commented that all members of the team were responsible for effective collaboration: "I think it's everybody...me...teacher, support staff...everybody..." This was very similar to comments made by Ruby that it was: "...all of us working together. I don't think there's one person whose job it is to come up with everything".

Nellie commented about her role as a parent making decisions for her child: "...It's alright at the moment because she's still young and we decide most things for our kids while they're young. I guess it's good to still give her advocacy for the future." For Nellie it was also important that everyone had a chance to be heard at meetings and that all team members' contributions were valued: "...say how things have gone and what's been hard... You might miss out on some information when it's so formal..."

Goal setting.

Functional goal setting was particularly important to Amelia's team and all team members talked about the importance of having clear goals. Some team members also talked about the difficulties translating the goals set at a team meeting into the classroom. For example Shirley commented: "...once you're in the classroom...what does that goal actually look like, broken down..." This contrasted Emily's team where Susan commented: "She really is involved, so it's not like we do something specifically separate with her...I just support her when she's joining in with everybody else." SLT field notes of a discussion with Julie noted that Emily was involved in setting goals for her own learning as part of whole class discussions whereas Amelia was not consulted regarding her learning goals.

Team communication.

The organising theme team communication contained three basic themes: shared expectations, roles and relationships.

Shared expectations.

Lucy identified the importance of “being consistent with those expectations” across the team and talked about how in a collaborative learning space, all of the teachers needed to be aware of what the expectations were. Lucy also identified that ensuring the whole team was aware of the expectations was her role as classroom teacher. Team member’s expectations for the students were not always the same, as some focussed more on social and friendship skills rather than academic progress. Both parents prioritised social and friendship goals rather than academic achievement. For example, Nellie commented that: “for me the goal is to be able to communicate better rather than that she can read and write...” and “at the end of the day it’s that she’s happy and has got lots of communication partners that’s really relevant”. Allie identified a link between communication and social inclusion when she commented: “it’s more the inclusiveness with the other kids rather than the academic stuff which concerns me...” and “if her communication was strengthened then that would probably make those relationships a bit easier too...” These comments from parents were very similar to comments made by Susan: “I really want to see her making friends and being able to talk to them and them understanding what she’s saying...that’s a big one.” Amy also talked about all the things that needed to be taken into account when planning Amelia’s programme:

For me, toileting and sleeping are non-negotiables...you fit everything else around. And so I can understand that you’d get frustrated maybe if you focused on the learning but we’ve got to fit that in and around the basic necessities.

While Emily's teachers valued her inclusion, they tended to focus on this in terms of her learning. For example, Julie identified that: "we've been very focused on ...bringing her learning levels up." All Emily's team also talked frequently about her speech clarity and whether this could be targeted as part of her SLT support. SLT reflections on Emily's support included comments that: "...towards the end I kind of steered the conversation back to the device when ... started talking about a speech programme".

In Amelia's team, the team members had some difficulty understanding each other's expectations. For example, the teaching team made comments that indicated they felt they did not always meet her parents' expectations. One team member summarised these comments; "sometimes the expectations are quite high". Another member of Amelia's school team commented that the family placed high importance on Amelia being fully included and she worried that they were not meeting this expectation. In contrast, the SLT field notes and interviews did not indicate that Nellie had made comments about the school not meeting expectations. The SLT's reflection on Amelia's support included the comment that "because the team take things so seriously, anything that is perceived as criticism is taken very seriously and can be misconstrued." The reflections also identified that the timing of the planning meeting may have contributed to some misunderstandings, as the school scheduled the meeting on a day when Amelia had a hospital visit, which meant that while the school team was free to meet, Nellie was not.

Roles.

The basic theme roles included the role of the SLT and of the teaching team members. The SLT's reflections identified that she had taken on the role of mediator with both teams. For Amelia's team, she had mediated members' expectations as she was "...aware of stresses around parent perceptions..." Due to the difficulties arranging for the team to meet at a time when all members were available, the SLT sometimes had to take on the role of coordinating communication within the team. With Emily's team, the SLT also had to act as a mediator between the school team and Allie around Emily's use of her AAC device. While the school were eager to raise Emily's awareness of the need for her to use the device, Allie was concerned that Emily "doesn't realise that she is different to other people" and was worried that frank discussions around her speech intelligibility could impact on her confidence.

Within the two different teams, the specialist teachers took on quite different roles. Amelia required significant adaptations in order to be able to access the curriculum and Ruby commented about her role that:

So I've just, I've kind of concentrated my efforts on adapting the curriculum. Which is, you know...so making sure that the alternative pencil's used and ..., that the eye gaze is used and that we've got the low tech working.

Whereas within Emily's team, Julie provided extra support but did not need to adapt the curriculum specifically for Emily. For example, at writing time Julie worked in class with a small group supporting Emily to add detail to her work. Julie and Susan both commented that working in a large modern learning environment was difficult on occasions. For example, Julie

commented that it could be: “difficult to provide effective support...as there is not clear communication about what students are supposed to be doing”. This perceived lack of clear communication was often due to timetabling which meant that the person supporting Emily arrived in class after the teachers had given instructions to the whole group.

Emily’s school team identified that while the specialist teacher and teacher aide were valuable supports, the classroom teacher and peers were key: “Because they’re all in ability groups that would be covered within that group that she works with so then it’s the classroom teacher and the peers that she works with rather than a teacher aide.” This contrasted with Amy, who commented that because Amelia always had another adult with her (either Shirley or Ruby) she felt “quite removed” from her at times.

Relationship.

The basic theme relationship included aspects of team communication that contributed to the relationship between team members. Communication within Amelia’s team was not always effective as comments from some team members indicated that there were some differences in team member’s expectations about meeting face to face. For example, Nellie commented that when the team met it could be “like oh, let’s get to this and then let’s get to this” rather than an opportunity for everyone to share their ideas. Nellie also commented that when meetings were full of teacher-speak, for example when “making a comment about a book” was reworded as “response to text”, this made people present who did not share an understanding of this terminology less likely to offer suggestions.

Emily's team identified that email was an effective method of communication for all members except Susan, as she did not have access to school email in her role as a teacher aide. To address this, Lucy identified that it was her responsibility (together with Julie) to make sure that Susan was informed of discussions and decisions that had taken place through email.

For both teams, communicating effectively within the teaching team could also be challenging as not everyone worked on all the same days. If the regular teacher was on release, this was another challenge especially for Amelia's team. For example, Ruby commented that as she only supported Amelia for two mornings per week she was sometimes unaware of changes that had been made to the classroom programme. When this happened the classroom teacher was not always able to help. One team member explained that: "teachers mightn't have been in class the day before...they're a bit on the back foot as well".

Enactment

The third global theme enactment related to supports for the achievement of successful AAC use that then supported student participation in both social and learning activities. This global theme contained the organising themes student participation and student voice.

Student participation.

Within the global theme enactment the organising theme student participation included what supported students to engage with learning and social activities and participate alongside their peers. This organising theme included the basic themes inclusion and communication partners.

Inclusion.

Inclusion was important for both teams although the strategies that supported the students to achieve this were very different. Amelia's team identified that strategies that suited her classmates did not necessarily work for her, whereas Emily's team identified that what was needed to support her inclusion was largely the same as what supported the inclusion of all students. Both teams were concerned about what was best for the student not only educationally but also as a person.

Emily's team had strong views about the strategies needed to support her being the same as what was needed for other students. Allie commented about the classroom culture and that something that was important to her was: "reminding all of the kids to be a bit more gentle and listen to each other". Lucy commented that while the progress that Emily had made wasn't necessarily in the areas she had expected "...I think a lot of the social stuff and her just fitting in, in everyday life, she's doing really well with." When the SLT asked Emily's team if there were any additional supports that they felt that they needed, they did not identify any. All of the team expressed the view that everyone needed to work together and that the classroom teacher had a key role within the team.

Julie commented that working in a small group suited Emily as: "...she works well with other people...The class is quite inclusive so somebody is always there that she can work with as well". This contrasted to comments made by Amy about Amelia's inclusion in the class reading groups: "...there's nothing in the way those groups are set up that hits the mark..." Amelia's school team identified that if Amelia was to actively participate in small groups, the team

needed to adapt the groups to suit her needs. SLT field notes documented that the school team actively problem-solved ways to support Amelia to do exactly the same things as her classmates. For example, at a planning meeting Shirley reflected:

And we need to allow the children to ask... those questions within that group. S (classmate) said "Did she like that picture?" She'd said something and I should have passed the cards to her. It's all that self reflection isn't it. I should have then passed the cards to S and said "you ask"...Allowing that time within that reading session for those things as well.

Amelia's teaching team also identified that there was a gap between what they saw as the ideal for her inclusion and what they were able to achieve. The team identified that as it took Amelia longer than her peers to complete activities this impacted on her inclusion and one team member commented: "...we kind of have to break away to do it, because it takes longer..."

Communication partners.

Communication partner attributes was another basic theme that emerged under the organizing theme student participation and related to both the adults in the team and peers of the students. For both students having communication partners who were familiar supported their communication success. Julie identified that "because the children have become familiar with her", they had become more effective in supporting Emily's communication and that her close friends would act as an interpreter when Emily was not understood in class. One of Emily's teaching team commented that they and her classmates "are understanding her better because they are more familiar with her" and Allie commented that she felt that Emily worked more

successfully when she had a relationship with the people around her. SLT field notes identified that Emily's school team varied in their willingness to take suggestions on board. For example, when the SLT suggested that Susan could support Emily to have her device available at all times, this was not implemented. In contrast, both Lucy and Julie implemented the suggestion of using PowerPoint.

Amy commented that Amelia and Shirley "have such a good relationship" that Shirley was able to support Amelia's communication more effectively than other partners. This support included "opening the way up if there's other children there and drawing them in". Amy identified that knowledge of Amelia was key in supporting her effectively, and identified that Shirley in particular was very skilled in supporting her and could provide professional development for the rest of the team (rather than looking for outside experts).

Amy identified that the team's attitude was important: "You need to wait for her to say "yes, no, whatever" ...and that is a mindset. And then once you've got that mindset then you've got to find a way to practically make it work". Whereas at the beginning of the research project, Amelia's team spoke about needing expert support, SLT reflection following the project documented that she felt that the team were coming to terms with the fact that this was not available and identifying ways in which the team members could support each other. In discussion with Amy, the SLT noted that: "Whereas other people might say "well actually we need this from this person, and this from this person and this from somebody else"...you guys actually... think, we want to sort it out ourselves in our team".

Student Voice.

Within the global theme enactment the second organising theme related to student voice which included the basic themes decision-making, confidence and use of AAC.

Decision-making.

The basic theme decision-making related to the student's participation in the decision making process, their inclusion in goal setting, and their ability to indicate their choices. SLT reflections on the goal setting process with both teams noted that the students were not included in the goal-setting meeting and that at the meeting the adults "were all talking about ...communication but we never actually asked her what she thinks". Nellie talked about the importance of Amelia being able to voice her choices in the future:

Along with that comes having the skills to indicate you know, her likes and dislikes and hobbies and to have a voice about what her life looks like so that it's not...It's alright at the moment because she's still young and we decide most things for our kids while they're young. I guess it's good to still give her advocacy for the future.

All members of Amelia's team identified that it was important for her to be able to communicate when something was wrong and for her to be able to voice her choice about activities.

Student confidence.

Emily's school team identified that her confidence to communicate had increased recently. For example Susan commented that: "she knows what she's trying to say and she's getting there". All the team identified that persisting when others did not understand was an area that Emily needed to continue to work on. Allie noted that she had seen a shift from "her being "poor me, poor me, you don't understand me" to "Grr Mum, it's your fault!" "which she saw as a positive step. Emily's school team also discussed that she wanted to present at assembly and how they could make this work. Susan commented that: "...she has the confidence; she talks about going up on stage and being one of the announcers. She doesn't see herself as not being like everybody else." SLT field notes indicated that the SLT had been part of this discussion and had suggested that Emily could use a PowerPoint to support other's understanding of her speech when presenting.

Julie shared how she had been supporting Emily with her "passion project" and that Emily had been doing this as a google doc on her laptop. SLT reflection identified that sharing in front of a group was a goal that Emily had identified for herself which may have contributed to its being achieved, as Emily was motivated to work towards this herself. Lucy commented that: "She was like "I'll do it" and she did a really good job".

Student use of AAC.

The two students differed significantly in the way that they used their AAC device. When interviewed, Julie used the phrase “when she’s asked to use it” which highlighted that Emily was not using her device spontaneously. Susan also talked about the difficulties around Emily’s AAC device use:

sometimes when she tells me something and I’m like “I don’t know what you’re saying, I’ll get your iPad” she’ll just go “it doesn’t matter” because she doesn’t want to either get the iPad out or she’s like “you’re not understanding so we’ll just leave it”.

SLT reflections on the support provided to Emily’s team noted that while the school team struggled to implement the AAC device in the classroom they “see the bigger picture and that she needs to be able to communicate with people who are unfamiliar to her”. Julie talked about how the school team had identified that using the AAC device on school trips and with people who were unfamiliar, could help Emily to see the usefulness of the device in supporting her to communicate successfully in different environments.

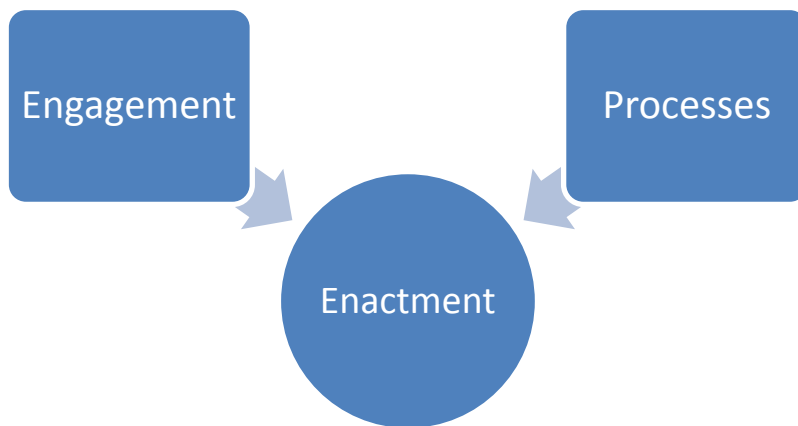
Whereas Emily was not using her device spontaneously, the high-tech AAC device was the only way that Amelia could communicate her ideas spontaneously but unfortunately frequent technical difficulties often got in the way of this. Amelia’s device was also mounted on her school desk and was not available for her to use in any other places.

Chapter 5

Discussion

This aim of this study was to provide an insight into the team members' perspectives regarding collaboration to support students who used Augmentative and Alternative Communication (AAC) in mainstream classrooms in New Zealand. This included the teams around two students; Amelia and Emily. Overall the results indicated many similarities between the perspectives of these participants and those from international research and these are discussed in the following chapter. The results were presented according to the global themes of processes, engagement, and enactment (see Table 2). The global themes processes and engagement both influenced enactment (as depicted in figure 3). The discussion presents an interpretation of the main findings from the engagement and processes themes and how these findings impacted the enactment of AAC support for these students.

Figure 3: Relationship between global themes



Processes

The global theme processes included the organising themes use of AAC supports, time, demands on the family, and team capacity. As there was a close relationship between the use of AAC supports, team capacity and time, information from across these themes has been integrated in order to explore the AAC supports, expectations, capability building, barriers, and demands on the family.

Use of AAC supports.

All members of Amelia's team agreed that her AAC systems were a critical aspect of life for her and her family. Using a high tech AAC system with eye gaze access enabled Amelia to communicate independently whereas other low-tech options relied on the availability of a skilled communication partner. This is consistent with research carried out overseas which also identified that the provision of an AAC system impacted not only the student who received it but their whole family (Angelo, 2000; Bailey, et al., 2006a). In McNaughton et al., (2008) parents identified that their child's ability to independently use an AAC system to communicate was a key measure of success, views which are very similar to those expressed by all members of the team around Amelia.

Increased expectations.

Nellie shared that the provision of a high tech system which Amelia could access independently had contributed to an increase in her expectations of what Amelia could achieve. This is similar to results in Myers (2007) in which AAC device use was associated with increased parental

expectations. Despite increased expectations from parents, in Myers (2007) not all participants maintained gains made during the period of targeted AAC intervention. The authors in Myers (2007) suggested that this was due to lack of on-going support from school personnel. In contrast, Amelia's school team were committed to support use of her high-tech device and it was frequent breakdowns and technical difficulties rather than a lack of team support that limited her use of her device.

Choice of AAC systems.

Emily's team found that the use of a computer and PowerPoint was more successful than her dedicated AAC device when sharing her ideas with a group. Emily was able to use the computer independently and was more motivated to use this as it involved the same technology as used by peers. Due to her difficulties with access, Amelia's choice of high-tech AAC system was limited to those that incorporated eye-gaze technology which meant that Amelia needed to use her AAC device to access other software such as PowerPoint. As Amelia's device was frequently unavailable due to technical difficulties, this restricted not only her ability to communicate independently but also her ability to access the curriculum by using strategies (like PowerPoint) which were similar to those of peers.

The results from Emily's team are similar to those in Myers (2007), in which students who maintained use of AAC devices used computers and communication software, rather than dedicated devices, to support their communication. In Myers (2007), the author suggested that as the students' communication partners were familiar with these systems, this reduced the time needed for training which may have contributed to the students' successful ongoing use.

Other studies have also found ease of device use to be associated with successful use of AAC (Bailey, et al., 2006a; Calculator, 2013).

Multi-modal communication was identified as a positive strategy for supporting these two students as it was in Kent-Walsh and Light (2003). Teachers in Kent-Walsh and Light (2003) identified the importance of students having other low-tech ways of communication (manual sign in this case) to use when their high-tech system was malfunctioning or not available. As well as her high-tech AAC device, Amelia's team also identified the value of low-tech AAC supports which could be used in different situations, and the school team was proactive in identifying and implementing these. Amelia's mother was aware and appreciative of the teaching team support and found that the low-tech strategies implemented at school were easy to carry on at home. This demonstrates the need for a combination of team support and access to different modes of communication to support successful enactment at home. This use of multi-modal communication to support Amelia is consistent with international research that rather than using one AAC device/system, AAC users use a variety of different modes across different contexts (Iacono & Cameron, 2009; Marshall & Goldbart, 2008).

The results indicated that when implementing AAC systems in the school setting, it is important to understand the team perspectives on inclusion, as this will influence the choice of AAC supports. Gaining an understanding of each others' perspectives allowed Emily's school team to identify appropriate strategies that supported her participation. Emily's teaching team was aware that she was motivated by the use of similar strategies to peers and did not want to be seen as different; while Allie acknowledged her need to feel comfortable with the system that

she was using. This is similar to Light and Drager (2007), in which the authors suggested that children valued AAC technology that is “cool” and which enhanced the user’s self esteem and social image, factors which were also important to Emily. Contact with other proficient AAC users who can act as role models has also been identified as a factor contributing to successful AAC device use (Batorowicz, Campbell, von Tetzchner, King, & Missiuna, 2014). That Emily was the only high-tech AAC user in her school and had only very limited contact with other AAC users may have also influenced her preference for technology that was similar to her peers.

Building capability.

In this study, both teams identified the value of training around the use of AAC for the team supporting the student and rather than this being solely the role of the Ministry of Education (MOE) Speech Language Therapist (SLT), both teams had received training from other professionals including TalkLink SLTs. Nellie especially identified the role of specialists from overseas in providing professional development around the latest ideas of how to support students with complex communication needs. This is consistent with findings from multiple international studies which have identified the importance of training to the successful implementation of AAC systems for students (Finke, et al., 2009; Myers, 2007; Soto et al., 2001b). Formal training in AAC was identified as “critical to the inclusion process” in Kent-Walsh and Light (2003)p. 120, in which the authors suggested that providing an AAC system is not enough, that the team around the student (including the classroom teacher) needs to have adequate training and knowledge of how to operate the system. Ensuring that school teams

receive adequate training around AAC use is an important aspect of building the capability of school teams to support students' successful AAC use.

Barriers.

Barriers to successful AAC use led to poor support for enactment of AAC in classrooms and reduced the students' opportunities to communicate independently. Technical difficulties were identified as a significant barrier by Amelia's team. All members of the team reported that the device did not work as well as they had expected and frequently broke down, which impacted significantly on Amelia's ability to communicate independently and to access the curriculum. Amelia's teacher aide was particularly vocal about the technical difficulties and that the device frequently had to go away to be fixed; leaving Amelia with no way of communicating independently for significant periods of time; frustrations that were very similar to those expressed by parents in Batorowicz, et al., (2014). These findings are consistent with international research. Technical difficulties associated with AAC devices have been identified as a barrier to their implementation in multiple overseas studies (Bailey et al., 2006a; Chung & Stoner, 2016; Kent-Walsh & Light, 2003; McNaughton et al., 2008). Some studies have reported that these technical difficulties limited the student's ability to use AAC in the classroom (Batorowicz, et al., 2014; Kent-Walsh & Light, 2003).

Both school teams also found that extra time was needed for the students to use their AAC to communicate and that this could be another barrier to successful AAC use. Emily's school team all commented that using her high-tech AAC device took extra time, something that they suggested contributed to her lack of motivation to use it. The extra time that it took for Amelia

to access her AAC device was identified as a barrier to her effective participation in classroom discussions as these often moved too quickly for her to keep up. Amelia's team also commented that the extra time required for AAC device use meant that they were not able to provide her with opportunities to voice her choices as they would have liked.

These findings are also similar to those in Batorowicz et al., (2014) in which the extra time required to use AAC was identified as limiting students' participation. Like Amelia and Emily's school teams, in Chung and Stoner (2016) professionals supporting students using AAC also identified that time was critical. This included the time required to programme devices, plan instruction and interaction opportunities, and provide training for team members and other communication partners. As Amelia had more complex communication needs than Emily and additional physical needs, the availability of time was a more significant factor for her team. For both teams, the extra time that it took to use the high-tech AAC device influenced the school team's attitude to the device; which was especially true for Amelia's team who also experienced frequent technical issues.

Demands on the family.

Both mothers in this study described extra demands placed upon them by their child's communication difficulties. These experiences around the extra demands imposed by parenting a child who uses AAC are similar to comments from parents in the international literature. In Marshall and Goldbart (2008) parents talked about the additional responsibility of having to act as an interpreter for their child, something which both parents in this study also spoke about. This responsibility was especially felt by Nellie due to all the difficulties with Amelia's device,

which meant that in almost all situations Amelia was reliant on a skilled communication partner to facilitate interactions rather than being able to communicate independently. Nellie, like the parents in Marshall and Goldbart (2008), had developed a very high level of knowledge about Amelia's specific medical condition and individual communication system. Allie had also developed a high level of knowledge regarding Emily's communication which had led her to advocate for provision of additional support to enable Emily use strategies as similar to those used by her peers as possible.

Engagement

The previous theme focussed on processes, systems and barriers that influenced AAC use and the enactment of this support in home and school contexts. Enactment was also influenced by each team member's engagement in the decisions about how to support these students. The theme engagement encompasses findings relating to team perspectives on collaboration, team communication, classroom support for students, and student voice.

Team perspectives on collaboration.

Both teams recognized the importance of effective collaboration to support the student and that the effectiveness of the team could impact on outcomes for the student. This is consistent with international research which has identified the importance of effective collaboration when supporting students who use AAC (Chung & Stoner, 2016). In order to collaborate effectively, teams need to develop a shared understanding of expectations for students, and of goals and roles within the team, in order to provide a consistent and cohesive approach. Important skills for effective collaboration include being respectful and communicating effectively (Chung &

Stoner, 2016; Soto et al., 2001b). Parents in this study were particularly respectful of other team members. Nellie advocated for team meetings in which all members had an opportunity to share their ideas, while Allie acknowledged that all members of the team were equally important. This is similar to perspectives expressed in Soto et al., (2001a) in which parents and educational assistants stressed the importance of professional team members valuing the contributions of all team members equally.

Due to the complex nature of Amelia's disability, she had a large team of specialists supporting her and Nellie expressed concerns that, when the team met, time constraints meant that not everyone had adequate opportunity to share their ideas. This is similar to international research which has highlighted the difficulties of balancing efficiency with the individual needs of families (Bacon & Causton-Theoharis, 2013). In Bacon and Causton-Theoharis (2013), parents of children with disabilities in USA commented that the speed of meetings made them feel flustered and rushed, which meant they did not always bring up things that they had wanted to. An important difference in this study is that Amelia's mother is a teacher herself, and her concerns around the meeting were not that her voice would not be heard, but rather that the ideas of other team members might be missed.

The involvement of the classroom teachers in this study was an important support to the team enactment of AAC in the classroom context. In this study, classroom teachers were recognized as key members of both teams and while it was sometimes difficult for the schools to arrange for the teachers to be released, they always made sure that this did happen. This contrasts with Myers (2007) in which classroom teachers were frequently absent from meetings as they were

not provided with release time to attend. For Amelia's team, time constraints around meetings did mean that the team did not meet as often or for as long as they would have liked and that team members only had a very short time for hand-over, something that the school team did feel impacted on successful communication between team members.

Team communication.

Effective communication between home and school has been identified as another significant factor in successful inclusion of children who use AAC (Finke et al., 2009). Both teams identified the importance of shared expectations and of making sure that all team members were aware of these. For Amelia's team, there were some difficulties around shared expectations as the school team worried that they were not meeting her family's expectation that she would be fully included in all classroom activities. The SLT did not note any comments from Amelia's mother about school not meeting expectations; thus the worries of the school team may reflect an inaccurate perception of the family's views. In her reflections, the SLT suggested that the timing of the planning meeting may have contributed to this misconception, as Nellie was not able to attend, which impacted on team communication. This highlights the point made in Hess, Molina, and Kozleski (2006) that it is important that schools balance their need to schedule meetings at times that allow teachers to be released economically with addressing the individual needs of the family.

This finding regarding the importance of effective team meetings in supporting enactment of strategies for students is consistent with research from overseas which identified the importance of regular team meetings where all members have an opportunity to contribute

(Soto et al., 2001a). International research has also suggested that lack of effective formal team meetings can mean that teams do not function at full capacity to effectively problem-solve and adapt to meet the student's needs (Chung & Stoner, 2016).

In addition to the timing of meetings, the use of professional language was another barrier to the development of shared expectations identified by Amelia's team. Nellie contributed that at meetings the use of "teacher-speak" meant that team members who did not have a shared understanding of this terminology could feel excluded and thus be less likely to contribute. This is consistent with research which has found that the professionalism of language can be a barrier to effective parent-school discussion (Bacon & Causton-Theoharis, 2013). In this study, Nellie acknowledged that as she was a teacher herself she was also guilty of using "teacher-speak" during meetings; and acknowledged that this had led to other team members who were not teachers to feel excluded from the conversation.

A lack of shared understanding can impact on the enactment of support for students. For example, the SLT noted that Emily's team frequently raised the topic of traditional articulation therapy with the SLT. This was despite the team identifying that Emily's difficulties were with sharing of more abstract information and persisting when she was not understood; goals that would not be addressed by intervention focused on speech sound development. The challenges experienced by the SLT in supporting Emily's team were similar to some described in Myers (2007) in which school teams wanted to focus on verbal speech for students with some ability to articulate. Allie also commented that she felt that Emily would benefit from more "one on one", time a view that was similar to that of parents in Watts Papas, McAllister, and McLeod

(2016), in which parents expressed a preference for individual therapy for their children with speech sound disorders.

Classroom support.

In addition to time for meetings, time relating to in-class support was another factor that impacted on enactment for students. Amelia's school team identified that they needed extra time to plan and adapt the classroom programme and that Amelia needed extra time both to use her AAC to communicate and to complete activities. Whereas Amelia's team identified the need for extra time for individual adaptation of the curriculum, Allie commented that what Emily needed was more "one on one" time rather than specific adaptation of the curriculum. Although she expressed a preference for more individual support for Emily, Allie was also realistic about this and commented that more "one on one" time was something that would benefit all students, not just Emily.

The perspectives of Amelia's school team around time are similar to those expressed in Finke et al., (2009) and Kent-Walsh and Light (2003) in which teachers mentioned the need for more time for lesson planning and modification in order to include students who used AAC. Finke et al., (2009) also specifically mentioned, as did Amelia's team, the need for students using AAC to be given longer to complete their work. Amelia's team also identified that like children in Batorowicz et al., (2014), her motor impairments meant that routines were time-consuming and took up a lot of her day, which lessened the amount of time available for learning.

While both classroom teachers identified that the demands of managing the whole class impacted on their availability to support Amelia and Emily in the classroom, like teachers in

Finke et al., (2009), both classroom teachers viewed supporting the inclusion of these students as their responsibility rather than a requirement that had been imposed on them from outside. Amelia's team identified areas where two adults were required in order to provide effective support, and shared that the extra time that Amelia required to access the curriculum successfully meant that it was often difficult for her to keep up with the rest of the class. Although Amelia's team identified that time was a constraint, they were also committed to finding solutions to the challenges around this. In contrast, Emily's teacher shared that the extra support that Emily received through her ORS funding needed to be monitored in order to ensure that she did not become reliant on extra help and continued to develop her ability to complete work independently. These perspectives reflected the differences between the two students; Amelia had complex physical difficulties in addition to her communication difficulties, whereas Emily's difficulties were primarily around her communication.

Both school teams identified that the classroom teacher played a key role in the team supporting the student although the perspectives of the teachers themselves around this were very different. Because Amelia always had another support person with her in the classroom (either Shirley or Ruby), Amy commented that she "felt removed" from her at times. Lucy did not experience this as Emily was able to participate independently in small groups which the classroom teacher facilitated. Both classroom teachers were proactive in looking for ways to develop a relationship with individual students and worked together with specialist teachers and teacher aides to collectively explore ways that they could provide effective support for all students (not just Emily and Amelia). The model adopted by Amelia's teaching team was similar to that discussed in Kurth et al., (2015) in which classroom teachers, special education teachers,

and para-professionals collaborated to support students with severe disabilities in a general classroom setting. Kurth et al., (2015) identified that this model of “co-teaching” incorporated aspects of Universal Design for Learning (UDL) and facilitated the learning of all students, not just those with additional needs.

As described in Hess et al., (2006) inclusiveness for these students extended beyond an educational placement and the school had developed a responsive environment where these students were accepted and welcomed (Hess, Molina, & Kozleski, 2006). Successful inclusion in the classroom was important to both teams and like the teachers in Finke et al., (2009), teachers in this study saw this as their role and responsibility as teachers of all students. A “positive attitude and an open-mind” have been identified as key characteristics for teachers supporting students who use AAC to be successfully included (Kent-Walsh & Light, 2003, p.116); characteristics which both school teams demonstrated in their on-going problem-solving around how to successfully include these students.

Amelia’s team identified that there was a gap between what they saw as ideal for her inclusion and what they were able to achieve. Factors that influenced this included her AAC device, the time that it took to program it, and the frequent technical difficulties that the team experienced. Other barriers that the team experienced related to time and team capacity as the team identified that they did not always have sufficient time to communicate regarding the classroom programme and how best to adapt activities to include Amelia, or the time to ensure that these adaptations were made.

Importance of team work.

The SLT identified that supporting Amelia's transition to a new classroom took up a significant amount of her time meaning she was not available to provide as much support for the implementation of AAC in the classroom as she would have liked. International research has highlighted the importance of supporting transitions between classrooms for students who use AAC (Kent-Walsh & Light, 2003), suggesting that this was an appropriate use of SLT time. Amelia's school team also talked about wanting an "expert" to provide them with answers to questions when even the TalkLink SLT (an AAC "expert") could not help. This led the team to go through a process of recognizing that they had to find answers for themselves and that there that there was no one person "on the end of the phone" who could fulfil their expectations. Through this process, Amelia's school team developed a shared understanding that the individual nature of Amelia's needs meant that there were not "ready-made" answers available to all questions around how to effectively support her. This process also led the team to develop an appreciation of each other's skills and identify that rather than relying on "experts" from outside, they could learn skills from each other.

Student voice.

SLT reflections on the goal setting process with the teams noted that neither student was included in the meeting or asked about their perspectives around their communication. All of Amelia's school team identified that being able to communicate when something was wrong and being able to voice her choices about activities was important, priorities which are consistent with overseas research around students with complex communication needs

(Calculator & Black, 2010). While Nellie identified that adults were currently making decisions for Amelia, Nellie also spoke about the importance of Amelia being able to advocate for herself in the future, a perspective also expressed by parents in overseas research (Marshall & Goldbart, 2008).

When reviewing the progress that Emily had made towards the goals identified at the beginning of this study, the team identified that the area which had been most successful was not something that had been identified as a goal by the adults but something that Emily herself had wanted to achieve. Both Lucy and Susan had discussed with the team that Emily wanted to be able to share her ideas in front of a group, something which she was able to achieve by using a PowerPoint presentation to support her classmates' understanding of her speech.

While there is no current research in New Zealand about the perspectives of children and young people with communication difficulties; findings from international research indicate that children and young people may have different perceptions of their communication difficulties than their parents; which is why it is important to obtain the views of children themselves (Roulstone et al., 2012). The New Zealand Disability Strategy and Treaty of Waitangi principles of partnership, participation and protection mean it is an expectation that disabled people have a voice in decision-making that impacts them; and that children are consulted about decisions that affect their lives or services (Doell & Clendon, 2017). The Ministry of Education in their Engagement Forum has also identified the importance of parents and children being able to express their views regarding services that are provided to support them (Ministry of Education, 2015a).

The need to address the perspectives of the AAC users themselves has been identified in overseas research (Batorowicz et al., 2014; Soto, et al., 2001b). In Batorowicz et al., (2014), students viewed their AAC device as an important tool to enable them to communicate what they wanted to say. The authors found that the use of a high-tech AAC device enabled children to share their own ideas and to ask questions, something that was more difficult to do using other methods of AAC support. This is consistent with the perspectives of Amelia's team who identified the importance of her high-tech AAC device to her self-advocacy in the future.

Parent perspectives.

Whereas in Bailey, Angell, and Stoner (2011), the time required to programme the AAC device resulted in increased demands on the family as they were primarily responsible for such programming and adding vocabulary, in the current study both school teams assumed some responsibility for this. Despite the support that she received from the school team, Amelia's mother also spoke about the added demands around making decisions and coping with changes to the AAC system. As Amelia's only way of communicating independently was to use her high-tech AAC system, this may have contributed to her mother's worries around ensuring that the system was the right one for her. Given the impact that AAC can have on quality of life for children with CCN (Angelo, 2000), and that matching the appropriate AAC system to the communicator is very important in ensuring successful device use (McNaughton et al., 2008), her concerns are understandable.

Research suggests a relationship between communication difficulties and negative impacts on quality of life, and that both parents and children value strategies that lead to functional

changes in life outcomes (Roulstone, 2015). This is consistent with the perspectives expressed by the parents in this study who both prioritized friendship and social skills over academic gains. Parents in this study, like those in the Goldbart and Marshall (2004) study, recognized the close links between communication and social inclusion and that the extent to which their child could make themselves understood influenced the degree of inclusion at school and in social situations. Emily's teacher in particular also recognized the importance of friendship and social skills and identified the value of gains that Emily had made in this area, while Allie had strong views about the strategies used to support her and that these were the same strategies that would support the inclusion of all students. Allie also viewed the classroom culture as an important aspect of successful inclusion of all students.

Chapter summary

The findings discussed in this chapter indicate that elements of both global themes processes and engagement are required for successful enactment of AAC support and outcomes for students using AAC. Rather than there being one key factor that led to successful enactment, this was achieved with combination of aspects of both systems and team attitudes which were not the responsibility of any one team member, but of the whole team working together as equal partners.

Chapter 6

Conclusion

This chapter summarises the purpose and findings of this study. The strengths and limitations are outlined and the implications for practice are discussed.

Purpose and rationale

This study aimed to identify the key elements of collaborative team support for two students who used augmentative and alternative communication (AAC) systems in mainstream classroom settings. It was hoped that these descriptive case studies would provide a local perspective and identify similarities and differences between the perspectives of New Zealand parents and school teams and those from overseas.

The researcher was motivated to carry out this research by her experiences as a speech language therapist (SLT) employed by the Ministry of Education (MOE) supporting students who use AAC to communicate in mainstream classrooms. The researcher wanted to enquire into her own practice and identify ways in which she could work more effectively with students and their families.

Strengths

Establishing trustworthiness is a method of measuring the quality of qualitative research by examining the following four elements: credibility, transferability, dependability, and confirmability (Guba, 1981). The credibility of a study refers to the ability of the researcher to account for complexities as they occur and deal with patterns that are difficult to understand.

Methods which address the credibility of a study include prolonged participation, something which the researcher achieved by involving schools where she had already worked for some time in her role as MOE SLT. Another method which enhances credibility is triangulation, which the researcher also achieved by collecting data from multiple sources (Mills, 2014).

The element of transferability refers to the belief of the qualitative researcher that the contents of the study are context bound and the goal of their work is not to develop generalised theories that transfer to larger groups. In order to ensure transferability the researcher needs to develop descriptive statements which are linked to the context of the study; collect detailed descriptive data and provide detailed descriptions of the study's context in order to facilitate others' judgements regarding transfer to other contexts (Mills, 2014). In this study, the researcher ensured transferability by collecting detailed data and providing a detailed description of the study context.

Dependability refers to the stability of the data and can be established by the use of overlapping methods of data collection and an audit trail which provides a written description of the study processes (Mills, 2014). This study utilized both overlapping methods of data collection and provided a detailed description of the processes in order to establish dependability. The final element required to establish trustworthiness is confirmability of the data which relates to the objectivity of the data. Confirmability can be attained by using triangulation to cross-check data and by using reflexivity to identify any underlying assumptions or biases of the researcher. Confirmability was met by the researcher's use of triangulation and a reflective journal.

Limitations

This study has a number of limitations that need to be considered when interpreting the findings. However, this did allow for an in depth study of both teams.

Small sample size.

This study involved only two school teams which means that the perspectives expressed do not reflect the diversity of experiences of all school teams supporting students who use AAC.

Self-selection bias.

Both of the school teams included chose to participate, which represents a potential bias. This means that rather than being objective, they may have had a particular interest in collaborative teaming to support students who use AAC, which influenced their perspectives.

The researcher being known to the participants may have also influenced the perspectives that they expressed. It is possible that in order to preserve their relationship with the researcher they refrained from expressing ideas that may have been contrary to the SLT's perspective or that revealed some limitations around their practice. However, the researcher did record in her reflections that she felt that her relationship with the participants influenced them to be more, rather than less open and honest.

Implications for practice

Despite these limitations, there were several key points identified in the results which may inform future practice regarding supporting students who use AAC in the mainstream

classroom. The findings of this study confirm those of research carried out overseas that has highlighted the importance of the provision of AAC supports for students with CCN, in order to enable these students to communicate independently, and to have a voice in decision-making. The findings also support overseas research which has indicated that rather than using one AAC system, AAC users tend to be multi-modal and use different systems in different contexts and with different communication partners. This is an important point which SLTs need to be aware of in their AAC practice.

Another key finding from this study is the importance of collaborative teaming to effective support for students who use AAC. This study identified that, as in overseas research, open communication and mutual respect were important for the collaborative process. This study also identified the importance of listening to the perspectives of all members of the team including the student and their family. The importance of including the student themselves in the team and of allowing them to have a voice in the decision-making process is an important additional finding not often mentioned in previous research. The importance of partnering with families was another factor that was identified as significant, as was the provision of adequate time for teams to meet. These are all factors that SLTs will need to consider in their practice supporting students using AAC to communicate.

That both teams in this study identified the importance of the classroom teacher is another critical finding. In this study, Amelia's team in particular moved from wanting support from outside "experts" to identifying the skills of existing team members and that they could work together to find solutions within the team. This is an interesting finding with regards to SLT

practice, as it may be that the SLT in addition to providing AAC intervention also takes on a role as a mediator or facilitator supporting the team to work together.

Concluding comments

Both teams included in this study identified the role of AAC in supporting students with CCN to communicate independently although frequent technical difficulties impacted on the enactment of this for Amelia. Both teams also identified the importance of all team members working together and that the classroom teacher was an important member of the team around the student. A positive attitude and a commitment to problem-solving regarding barriers were important qualities both for individual team members and the team as a whole. The importance of involving students themselves in the goal setting process was also highlighted with the most positive outcome achieved for the goal that the student (Emily) had identified for herself. Further research is needed to explore ways to support student's communication in order to ensure their active participation in the team supporting them and their ability to advocate for themselves in decisions that impact their lives.

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Appendix 1: Ethics approval

-----Original Message-----

From: humanethics@massey.ac.nz [<mailto:humanethics@massey.ac.nz>]

Sent: Thursday, 15 December 2016 11:59 a.m.

To: [REDACTED]

Subject: Human Ethics Application NOR 16/51 Approved

HoU Review Group

ReviewerGroup

Dr Elizabeth Doell

Researcher: Jane McKinnon

Title: How collaboration between speech language therapists, teachers and families can support communication for students using alternative and augmentative communication Systems in an inclusive classroom setting.

Dear Alison

Thank you for the above application that was considered by the Massey University Human Ethics Committee: Human Ethics Northern Committee at their meeting held on 15/12/2016. On behalf of the Committee I am pleased to advise you that the ethics of your application are approved.

Approval is for three years. If this project has not been completed within three years from the date of this letter, reapproval must be requested.

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

If you wish to print an official copy of this letter, Please logon to RIMS (<http://rims.massey.ac.nz>), and under the Reporting section, View Reports you will find a link to run the Ethics Committee Report.

Yours sincerely

Dr Brian Finch, Chair

Massey University Human Ethics Committee

Appendix 2: Information sheet for principals



MASSEY UNIVERSITY
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TE KURA O TE MATĀURANGA

Collaborative teaming to support functional goals for students who use AAC

Invitation to participate:

I would like you to consider your school participating in a study which aims to investigate how collaborative teaming between teachers, specialist teachers, parents and speech language therapists (SLTs) can support functional goal setting for children who use Alternative and Augmentative Communication (AAC) in an inclusive classroom setting. This research will be carried out by Jane McKinnon (SLT) as part of her MSLT thesis under the supervision of Dr Elizabeth Doell and Dr Sally Clendon, both of whom are experienced SLTs and researchers in Massey University's Speech and Language Therapy programme.

If you have a student at your school who uses AAC to communicate in the classroom I would like you to read this information and think about whether your school would like to participate in the project. With your consent, I will then invite your student's parents, teacher, and specialist teacher to participate in this research. For this study, I will have dual roles as your student's SLT and a researcher. The use of a Participatory Action Research approach will give me an opportunity as a researcher to reflect on the process of working as your SLT in collaboration with you and other team members.

Project Procedures

The Participatory Action Research approach consists of several stages which will take place in term 1 and 2, 2017. Some of the procedures will be part of your SLT service from the Ministry of Education and some of the procedures will require an additional time commitment from the participants.

Project procedures which are part of your SLT service will be:

1. An Initial classroom observation. I will observe your student in the classroom (for at least 60 minutes) and obtain observational data about the how he or she communicates and participates.
2. The team will participate in a planning meeting (for up to 60 minutes) to discuss and identify appropriate goals for your student. As your SLT and the researcher I will record the meeting and the transcript of the meeting will be shared with participants to ensure that it is an accurate record of the meeting.
3. In my role as your student's SLT I will support the school to implement the goals identified. As SLT and researcher I will document this support, the time involved and my own reflections on this process.

Project research procedures which will be additional to the Ministry of Education SLT service:

1. I will meet your student's parents, specialist teacher and teacher individually for 30-45 minutes to find out about their perspectives. Our discussions will be recorded and I will share the transcript of the interview with them to ensure that it correctly represents their views.
2. As the researcher I will interview your student's parents and school team members following the planning meeting to obtain their perspectives about the meeting.

If your school decides to participate in the project, the time involved in the team meeting will be part of the typical SLT service delivery model but extra time will be required for the individual interviews with me as the researcher. This will involve no more than two hours per staff member.

Data Analysis and Management

Throughout the project I will be audio-recording and transcribing our interviews and the team meeting. Transcripts of these recordings will be available for participants to review and information from these will only be included in the data analysis following their permission.

The observation records, audio files, and transcriptions will be stored on a password protected iron key. These data files will have codes rather than identifying names on them.

The consent forms and the code documents (which link the participant name to the audio and transcribed files) will be stored in a password protected folder in the research folder on Massey university's Speech Language Therapy programme Drive. All field notes, transcriptions of interviews and meetings and audio files will be transferred for safekeeping to the supervisor directly following analysis and will be held for 7 years after collection (not after publication).

I will provide all participants with a summary of research findings on completion of the project. When I write about the project I will not use any information that could potentially identify schools, teachers, parents or children by name.

Your Rights

In following ethical procedures for research I can reassure you that your school is under no obligation to accept this invitation and that your decision will make no difference to my role as your student's SLT. If your school decides to participate, your team will have the right to:

- decline to answer any particular questions;
- ask that the recorder be turned off at any time during the interview;
- withdraw from the study at any time before the end of the data collection period;
- review any audio files of your interviews;
- ask for any audio material to be erased from the data set;
- ask any questions about the study at any time during participation;
- provide information on the understanding that your audio data will not be used unless you give permission to the researcher;
- be given access to a summary of the project findings when it is concluded.

Project Contacts

Thank you for taking the time to consider this request. Should you have any questions or require additional information about the project please contact the researcher at:

████████████████████

If you have any concerns about this research that you would like to discuss with the researcher's supervisors they can be contacted at:

Dr Elizabeth Doell (Albany campus) e.h.doell@massey.ac.nz Ph: 09 414 0800 X 41488	Dr Sally Clendon (Albany Campus) s.clendon@massey.ac.nz Ph: 09 4140800 X 41647
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Committee Approval Statement

This project has been reviewed and approved by the Massey University Human Ethics Committee: Northern, Application NOR 16/51. If you have any concerns about the conduct of this research, please contact Dr Lily George, Acting Chair, Massey University Human Ethics Committee: Northern, telephone +649 414 0800 x 43923, email humanethicsnorth@massey.ac.nz.

Appendix 3: Information sheet for parents



MASSEY UNIVERSITY
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TE KURA O TE MATĀURANGA

Collaborative teaming to support functional goals for students who use AAC

Invitation to participate:

I would like you to consider participating in a study which aims to investigate how collaborative teaming between teachers, specialist teachers, parents and speech language therapists (SLTs) can support functional goal setting for children who use Alternative and Augmentative Communication (AAC) in an inclusive classroom setting. This research will be carried out by Jane McKinnon (SLT) as part of her MSLT thesis under the supervision of Dr Elizabeth Doell and Dr Sally Clendon, both of whom are experienced SLTs and researchers in Massey University's Speech and Language Therapy programme.

If your child uses AAC to communicate in the classroom I would like you to read this information and think about whether you would like to participate in the project. I am also inviting your child's teacher, and specialist teacher to participate in this research. For this study, I will have dual roles as your child's SLT and a researcher. The use of a Participatory Action Research approach will give me an opportunity as a researcher to reflect on the process of working as your SLT in collaboration with you and other team members.

Project Procedures

The Participatory Action Research approach consists of several stages which will take place in term 1 and 2, 2017. Some of the procedures will be part of your SLT service from the Ministry of Education and some of the procedures will require an additional time commitment from you.

Project procedures which are part of your SLT service will be:

4. An Initial classroom observation. I will observe your child in the classroom (for at least 60 minutes) and obtain observational data about the how he or she communicates and participates.
5. The team will participate in a planning meeting (for up to 60 minutes) to discuss and identify appropriate goals for your student child. As your SLT and the researcher I will record the meeting and the transcript of the meeting will be shared with participants to ensure that it is an accurate record of the meeting.
6. In my role as your child's SLT I will support the school to implement the goals identified. As SLT and researcher I will document this support, the time involved and my own reflections on this process.

Project research procedures which will be additional to the Ministry of Education SLT service:

3. I will meet with you, your child's specialist teacher and teacher individually for 30-45 minutes to find out about your perspectives. Our discussions will be recorded and I will share the transcript of the interview with the participants to ensure that it correctly represents their views.
4. As the researcher I will interview you and your child's school team members following the planning meeting to obtain perspectives about the meeting.

If you decide to participate in the project, the time involved in the team meeting will be part of the typical SLT service delivery model but extra time will be required for the individual interviews with me as the researcher. This will involve no more than two hours of your time.

Data Analysis and Management

Throughout the project I will be audio-recording and transcribing our interviews and the team meeting. Transcripts of these recordings will be available for participants to review and information from these will only be included in the data analysis following their permission.

The observation records, audio files, and transcriptions will be stored on a password protected iron key. These data files will have codes rather than identifying names on them.

The consent forms and the code documents (which link the participant name to the audio and transcribed files) will be stored in a password protected folder in the research folder on Massey University's Speech Language Therapy programme Drive. All field notes, transcriptions of interviews and meetings and audio files will be transferred for safekeeping to the supervisor directly following analysis and will be held for 7 years after collection (not after publication).

I will provide all participants with a summary of research findings on completion of the project. When I write about the project I will not use any information that could potentially identify schools, teachers, parents or children by name.

Your Rights

In following ethical procedures for research I can reassure you that you are under no obligation to accept this invitation and that your decision will make no difference to my role as your child's SLT. If you do decide to participate, your team will have the right to:

- decline to answer any particular questions;
- ask that the recorder be turned off at any time during the interview;
- withdraw from the study at any time before the end of the data collection period;
- review any audio files of your interviews;
- ask for any audio material to be erased from the data set;
- ask any questions about the study at any time during participation;
- provide information on the understanding that your audio data will not be used unless you give permission to the researcher;
- be given access to a summary of the project findings when it is concluded.

Project Contacts

Thank you for taking the time to consider this request. Should you have any questions or require additional information about the project please contact the researcher at:

████████████████████

If you have any concerns about this research that you would like to discuss with the researcher's supervisors they can be contacted at:

<p>Dr Elizabeth Doell (Albany campus) e.h.doell@massey.ac.nz Ph: 09 414 0800 X 41488</p>	<p>Dr Sally Clendon (Albany Campus) s.clendon@massey.ac.nz Ph: 09 4140800 X 41647</p>
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Committee Approval Statement

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Appendix 4: Information sheet for teachers



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Collaborative teaming to support functional goals for students who use AAC

Invitation to participate:

I would like you to consider participating in a study which aims to investigate how collaborative teaming between teachers, specialist teachers, parents and speech language therapists (SLTs) can support functional goal setting for children who use Alternative and Augmentative Communication (AAC) in an inclusive classroom setting. This research will be carried out by Jane McKinnon (SLT) as part of her MSLT thesis under the supervision of Dr Elizabeth Doell and Dr Sally Clendon, both of whom are experienced SLTs and researchers in Massey University's Speech and Language Therapy programme.

If you have a student who uses AAC to communicate in your classroom I would like you to read this information and think about whether you would like to participate in the project. I am also inviting the student's parents to participate in this research. For this study, I will have dual roles as the student's SLT and a researcher. The use of a Participatory Action Research approach will give me an opportunity as a researcher to reflect on the process of working as your student's SLT in collaboration with you and other team members.

Project Procedures

The Participatory Action Research approach consists of several stages which will take place in term 1 and 2, 2017. Some of the procedures will be part of your SLT service from the Ministry of Education and some of the procedures will require an additional time commitment from you.

Project procedures which are part of your SLT service will be:

7. An Initial classroom observation. I will observe your student in the classroom (for at least 60 minutes) and obtain observational data about the how he or she communicates and participates.
8. The team will participate in a planning meeting (for up to 60 minutes) to discuss and identify appropriate goals for your student. As your SLT and the researcher I will record the meeting and the transcript of the meeting will be shared with participants to ensure that it is an accurate record of the meeting.
9. In my role as your student's SLT I will support the school to implement the goals identified. As SLT and researcher I will document this support, the time involved and my own reflections on this process.

Project research procedures which will be additional to the Ministry of Education SLT service:

5. I will meet with the student's parents and school team members individually for 30-45 minutes to find out about their perspectives. Our discussions will be recorded and I will share the transcript of the interview with participants to ensure that it correctly represents their views.
6. As the researcher I will interview your student's parents and school team members following the planning meeting to obtain their perspectives about the meeting.

If your school decides to participate in the project, the time involved in the team meeting will be part of the typical SLT service delivery model but extra time will be required for the individual interviews with me as the researcher. This will involve no more than two hours per staff member.

Data Analysis and Management

Throughout the project I will be audio-recording and transcribing our interviews and the team meeting. Transcripts of these recordings will be available for participants to review and information from these will only be included in the data analysis following their permission.

The observation records, audio files, and transcriptions will be stored on a password protected iron key. These data files will have codes rather than identifying names on them.

The consent forms and the code documents (which link the participant name to the audio and transcribed files) will be stored in a password protected folder in the research folder on Massey University's Speech Language Therapy programme Drive. All field notes, transcriptions of interviews and meetings and audio files will be transferred for safekeeping to the supervisor directly following analysis and will be held for 7 years after collection (not after publication).

I will provide all participants with a summary of research findings on completion of the project. When I write about the project I will not use any information that could potentially identify schools, teachers, parents or children by name.

Your Rights

In following ethical procedures for research I can reassure you that your school is under no obligation to accept this invitation and that your decision will make no difference to my role as your student's SLT. If your school decides to participate, your team will have the right to:

- decline to answer any particular questions;
- ask that the recorder be turned off at any time during the interview;
- withdraw from the study at any time before the end of the data collection period;
- review any audio files of your interviews;
- ask for any audio material to be erased from the data set;
- ask any questions about the study at any time during participation;
- provide information on the understanding that your audio data will not be used unless you give permission to the researcher;
- be given access to a summary of the project findings when it is concluded.

Project Contacts

Thank you for taking the time to consider this request. Should you have any questions or require additional information about the project please contact the researcher at:

████████████████████

If you have any concerns about this research that you would like to discuss with the researcher's supervisors they can be contacted at:

<p>Dr Elizabeth Doell (Albany campus) e.h.doell@massey.ac.nz Ph: 09 414 0800 X 41488</p>	<p>Dr Sally Clendon (Albany Campus) s.clendon@massey.ac.nz Ph: 09 4140800 X 41647</p>
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Committee Approval Statement

This project has been reviewed and approved by the Massey University Human Ethics Committee: Northern, Application NOR 16/51. If you have any concerns about the conduct of this research, please contact Dr Lily George, Acting Chair, Massey University Human Ethics Committee: Northern, telephone +649 414 0800 x 43923, email humanethicsnorth@massey.ac.nz.

Appendix 5: Questionnaire for interviews



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Questionnaire for semi-structured interviews

Collaborative teaming to support functional goals for students who use AAC

1. Can you tell me about XXX's communication at school and what is going well at the moment?
2. What is important to you in terms of XXX's communication at school?
3. What change would you like to see around XXXX's communication at school over the next 6 months?
4. Who do you see as the key people to support this change?
5. What supports do you think the school team may need?

Appendix 6: Script for verbal consent



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Script for verbal consent

Collaborative teaming to support functional goals for students who use AAC

Invitation to participate:

Assent will be obtained from all of the children who use AAC using the following script:

Jane your speech language therapist is interested in finding out how she can improve the way she works so that we can help you to communicate better at school. She will be talking about this with you, with me (parent) and with XXX (teacher's name). Are you happy for her to do this?

Jane would like to be able to share information about how you communicate in the classroom (without using your name or any other personal details) through:

1. A summary report for teachers and SLTs.
2. A presentation at a conference for other people interested in how to assist students to communicate better at school.

Are you happy for her to do this?

Appendix 7: Participant consent form



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Collaborative teaming to support functional goals for students who use AAC

PARTICIPANT CONSENT FORM - INDIVIDUAL

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

I agree/do not agree to the interview being sound recorded.

I wish/do not wish to have my recordings returned to me.

I agree/do not agree to interviews taking place on school premises and in school hours.

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

Signature:

.....

Date:

.....

Full Name - printed

.....

Appendix 8: Transcript release authority



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Collaborative teaming to support functional goals for students who use AAC

AUTHORITY FOR THE RELEASE OF TRANSCRIPTS

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

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

Signature:

.....

Date:

.....

**Full Name -
printed**

.....

Appendix 9: Communication Plan for Emily

Goal/ Specific learning Outcome	Strategies	Personnel/Resources	Other
Emily will develop her listening skills		<ul style="list-style-type: none"> • Listening programme from the SLT • Reminders from classroom teacher 	Help Emily to develop independence rather than relying on an adult to remind her.
Emily will develop strategies to use when others don't understand	<ul style="list-style-type: none"> • Use her device • Say it in a different way • Use gestures 		
Emily will develop her expressive (spoken) vocabulary	<ul style="list-style-type: none"> • Make sure that vocabulary specific to inquiry topic is loaded onto her device. 		
Emily will develop her ability to identify key facts from within text (summarizing)	<ul style="list-style-type: none"> • Mind maps • Lots of discussion with others 	<ul style="list-style-type: none"> • Specialist teacher to work on this during her sessions with Emily. 	

Appendix 10: Communication Plan for Amelia

Create opportunity	Add AAC	Model	Prompt
Amelia will share her news from home at school and her news from school at home.	Use the switch Use her high-tech device	Adults to scaffold what goes on the switch by offering Amelia choices of what she would like to record. Other students to be involved in recording Amelia’s message.	Ask a question expectantly & give Amelia time to respond.
Amelia will respond to a question about something that has made her laugh.	Start with the “yes” and “no” cards, once this is achieved move on to other AAC (high and low tech).	Adults and peers to model “I thought that was funny because...”	Ask Amelia “Did you think that was funny?” and then present the “yes” or “no” cards.
Amelia will share her opinions about a book that she enjoys.	“Yes” and ‘No” cards PODD book Switch High tech device	Ask Amelia whether she wants to read the same book again or a different book. Adults and peers to model comments about the book.	Peers to ask Amelia questions. One adult to facilitate the group and another to support Amelia.