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Enhancing Augmentative and Alternative Communication Use through Collaborative Planning  
and Peer Modelling

A thesis presented in partial fulfilment of the requirements for the degree of Masters of

Educational Psychology

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## AAC CONVENTIONS

Please note: When describing an interaction where both spoken language and speech output from an AAC system occurred, the following conventions were used:

Spoken language: italicised, quotations marks, e.g. *“Do you have anything to share?”*

Speech output from AAC system: italicised, no quotations marks, e.g. *I went to snow.*



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## ABSTRACT

Communication difficulties are a core feature of autism spectrum disorder (ASD). It is estimated that 30-50% of children and adults with ASD do not develop sufficient spoken language to meet their daily communication needs. As well as difficulties with producing spoken language, children with ASD exhibit challenges with social-communication, for example, they may use a limited range of communicative functions and/or have difficulty initiating and responding to social interactions.

For children who have difficulty producing spoken language, augmentative and alternative communication (AAC) systems can provide an accessible and functional means of communication. In order for children who are learning to use AAC to become competent communicators, they must have frequent exposure to high quality language interactions with skilled communication partners. While there is an evidence base showing that behavioural, requesting focussed interventions can be effective in some circumstances for children with ASD, concerns about generalisability, and the lack of socio-communicative focus have led to calls for more naturalistic, social communication interventions.

This study focused on investigating ways of supporting a child's social communication using AAC within an interactional activity in the natural environment of his classroom. A descriptive case-study design was used to document the implementation of a four-phase, peer-mediated AAC intervention in an inclusive classroom. The focus was on social communication, and the intervention was developed and enacted in a collaborative partnership with the classroom teacher.

In conducting this study, multiple sources of data, including interviews, observations, and data from an AAC system, were collated and analysed. From this analysis, three key themes emerged: a) enhanced participation, b) creation of a communicably accessible environment, and c) increased teacher agency. These themes suggest positive outcomes for a naturalistic, social-communication intervention, adding to the calls for further research development in this area.

## CHAPTER ONE:

### Introduction

This study employed a descriptive case study design to explore the outcomes of a social communication intervention for a student with autism spectrum disorder who used augmentative and alternative communication in an inclusive classroom. The design of the intervention was chosen to address gaps in the current literature, and drew on several components in order to maximise outcomes. These included partnering with the classroom teacher, involving peers, and embedding the intervention in a natural classroom routine. The following chapter defines key concepts, and builds a context and rationale for the study.

### Autism Spectrum Disorder

Autism Spectrum Disorder (ASD) is a behaviourally defined, neurodevelopmental disorder. It is of mostly biologic etiologies, but is further influenced by environmental factors (Goldman, 2013). It is characterized as being a particularly idiosyncratic condition, existing in various permutations and combinations along the spectrum (Dharan, 2016). Communication difficulties are a core feature of ASD, where multiple factors across cognitive, motor, and sensory domains are likely to play a role (Goh et al., 2013). It is estimated that 30-50% of children and adults with ASD do not develop sufficient spoken language to meet their daily communication needs (Rose, Trembath, Keen, & Paynter, 2016).

As well as difficulties with producing spoken language, children with ASD exhibit challenges with social communication. They may use a limited range of communication functions, such as reduced use of communication acts to share interests and emotions. They may also exhibit

problems with appropriately initiating and responding to communication with others (American Psychiatric Association, 2013). In particular, Shumway and Wetherby (2009) noted that children with ASD demonstrate a predominant use of communicative acts for behavioural regulation (e.g., requests for objects and actions, and protests), with more limited use of those required for social interaction (e.g., requests for social routines and permission, showing off, greetings, calling, and acknowledgements), or signalling joint attention (e.g., comments, requests for information, and clarifications).

## **Augmentative and Alternative Communication**

Augmentative and Alternative Communication (AAC) is used 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 includes unaided systems such as sign language, low-tech aided systems such as a communication book or board, and high-tech aided systems such as a dedicated AAC device, or a software system (app) on a tablet device.

**High-tech augmentative and alternative communication.** High-tech aided systems are sometimes referred to as speech generating devices (SGDs) as they provide voice output in the form of digitized or synthesized speech. In recent years, there has been an increased uptake of SGDs (Wegner, 2012), especially since the release of the iPad and other mobile technologies (McNaughton & Light, 2013). While low-tech systems remain a viable AAC option, particularly when technology is not accessible or fails to operate, SGDs are considered to have several advantages over systems that do not produce speech (Trottier,

Mirenda, & Kamp, 2011). They use both visual and auditory cues as an efficient means to obtain a communication partner's attention. In addition, they provide a familiar, precise, and clear form of output to communication partners (Schlosser, Sigafoos, Koul, Mirenda, & Iacono, 2009). This is especially important for interactions in school and community settings (Trottier et al., 2011).

The use of newer mobile technologies, such as iPads offer additional advantages for fostering interaction, including bright colours, personalization, popular themes and characters, and games and music prompting both the child using AAC and their communication partner to engage (Therrien & Light, 2016). Furthermore, mobile devices are an increasingly typical aspect of daily life, therefore to see someone with a mobile device is far from unusual and thus may be less stigmatizing than a dedicated AAC system (Therrien & Light, 2016). As the use of iPads and other mobile devices for AAC becomes more mainstream, a shift from conceptualizing AAC as a dedicated technology for a single student to an environmental support, is possible, however further research is required (Therrien & Light, 2016).

## **Augmentative and Alternative Communication Intervention for Children with Autism Spectrum Disorder**

To date, the intervention research for children with ASD in the AAC literature has largely been drawn from the tenets of Applied Behaviour Analysis. These interventions have often been delivered in 1:1 clinical settings, by specialized practitioners and have had a strong emphasis on communication for behavioural regulation, such as requesting and rejecting. Recent research conducted with iPads has also focused on developing these same kinds of communication skills (Kagohara et al., 2010; Kagohara et al., 2013). While there is a large

evidence base showing that these interventions can be effective (Schlosser et al., 2009), there are also concerns about the lack of focus on the social-communication difficulties associated with ASD, as well as the lack of generalizability of the skills acquired in these interventions (Logan, Iacono, & Trembath, 2016). In response to these concerns, a call has been made for more socially-focussed, naturalistic research that considers the individual with ASD, their communication partners, and environmental variables within the intervention plan (Prelock & McCauley, 2012).

In order to address this need, there are several contextual components that need to be considered to maximise success, including the inclusive education model, children's relationships with their peers, and the role of classroom teachers. Further discussion and rationale for these components is given below.

**Peer-support intervention.** Peer support arrangements are an evidence-based intervention for increasing interactions between children with disabilities and their peers in general education classrooms (Biggs, Carter, & Gustafson, 2017). Peer support arrangements involve equipping a number of peers without disabilities to provide ongoing academic and social support to their classmate with a disability. Although empirical evidence for the positive effects of peer support arrangements is strong, and research in this area has included children with a range of cognitive and physical disabilities, there is limited evidence available focusing on children who use AAC (Biggs et al., 2017).

**Embedded intervention.** Incorporating communication opportunities into a child's familiar activities, and responding to spontaneous communication in an embedded environment increases skill generalisability (Prizant, Wetherby, & Rydell, 2000). Logan et al. (2016) argued

that the incorporation of embedded intervention components may be critical to addressing children with ASD's core social-communication difficulties, enabling them to engage in the spontaneous and flexible communication required to fulfil their everyday communication needs. However, only 42% of the intervention studies published in the *Augmentative and Alternative Communication* journal over the past 10 years were carried out in natural environments (Light & McNaughton, 2015). As Green (2008) suggested, "if we want more evidence-based practice, we need more practice-based evidence" (p. 23).

**Collaborative partnerships.** Collaborative consultation is a systematic process of planning and problem solving that involves team members from diverse backgrounds. Educational team collaboration has been discussed as critical to successful inclusion of children who use AAC (Bailey, Stoner, Parette, & Angell, 2006), with a lack of team support found to be one of the biggest factors in cases of system abandonment (Johnson, Inglebret, Jones, & Ray, 2006). However, there are few experimental studies that have addressed the extent to which collaborative planning of support strategies can enhance the learning and interaction of children who use AAC in inclusive classrooms (Hunt, Soto, Maier, Müller, & Goetz, 2002; Wetherby & Woods, 2006).

## **Research Aims**

As discussed, this study explored the outcomes of an intervention that focused on social communication for a child with ASD who used AAC. The intervention was embedded in a naturalistic instructional routine in an inclusive classroom environment. The case study included the child with ASD, his peers, and his classroom teacher. The following research question was addressed:



1. What are the outcomes of an intervention that consists of collaborative planning and peer support arrangements for a student who uses AAC in an inclusive classroom?

## **Structure of the Thesis**

Chapter One has provided an overview of ASD, AAC, and a description and rationale of the intervention components present in this study. Chapter Two further discusses language development and interventions and the research exploring how to promote best practice and outcomes in these areas. Chapter Three outlines the methodology of this study, including a rationale of the case study design, description of the study procedures and phases, data collection methods, the framework utilized in data analysis, and the ethical considerations relevant to the study. Key themes identified in the study are then presented in Chapter Four. Chapter Five provides more in-depth discussion of these themes in relation to the research question, and future considerations of this study.

## **CHAPTER TWO:**

### **Literature Review**

This literature review will examine current theories of language development, for children developing spoken language, and for those that use AAC, including the competencies required to become proficient communicators. The review will then present current models and understanding of best practice regarding AAC interventions, with specific attention paid to interventions for children who have ASD and additionally use AAC. The review will then identify current gaps in the intervention literature, and will explore the intervention factors, including peer-support frameworks, collaborative partnerships with teachers, and working within inclusive models of education, that may assist in filling these gaps.

### **Language Development**

Communication underpins all learning and all social interaction. It is used to convey information, develop understandings, think critically, express ideas and identity, build relationships, and manage social interactions. If children are to succeed at school, and in society, they need to become proficient thinkers and communicators (Ministry of Education, 2009).

Pragmatic-social interactive theory places great emphasis on the context of social interaction in language development. Children are viewed as active participants who learn to affect the behaviour and attitudes of the people around them, in a developmental interaction between the language learning environment and the child's cognitive, socio-emotional, and language capacities (Wetherby & Woods, 2006). Proponents of this theory understand that in order to

develop successful communication skills, emphasis should be placed on establishing a rich learning environment where social communicative opportunities are prioritized, demonstrating how verbal behaviours can fulfil everyday communication needs (Prizant et al., 2000).

### **Language development for children who use augmentative and alternative**

**communication.** In the early phases of language development, children get help from adults in their environment, who engage them in communicative interactions. This creates the rich social environment needed to facilitate communication skills. For children who are developing spoken language, they are typically surrounded by extensive language input, and adults in the environment provide ample modelling opportunities (von Tetzchner & Stadskliev, 2016). In contrast, for children who are learning to use AAC, there is limited use of AAC in society. Therefore, children depend on the conscious, deliberate efforts of parents, teachers and other professionals to establish a supportive language environment (von Tetzchner & Stadskliev, 2016).

The need for a supportive language environment is a central component of AAC intervention (von Tetzchner & Stadskliev, 2016). It is well recognised that the provision of AAC systems alone does not lead to proficient communication. Rather, alongside these systems, must be appropriate support, instruction, practice and encouragement as competence increases over time. Light (1989) identified four competencies that must be developed and given appropriate support for AAC users to move from novices to experts: linguistic, operational, social, and strategic competence.

***Linguistic competence.*** Linguistic competence refers to the receptive and expressive language skills of an individual's native language. Individuals who use AAC must develop knowledge of the linguistic code unique to their AAC system, including symbols, and symbol organisation. In addition, they must develop understanding of the language spoken by their communication partners in order to receive messages (Beukelman & Mirenda, 2005).

To support the development of linguistic competence, communication partners can offer ongoing opportunities for practicing expressive language in natural contexts (Ronski & Sevcik, 1996). For children who already have an understanding of spoken language, this may simply mean helping the child to match AAC symbols to known words. For beginning communicators who are learning language through AAC, communication partners themselves have to learn the symbol system in order to provide sufficient modelling opportunities in a real-world context for practice (Beukelman & Mirenda, 2005)

***Operational competence.*** Operational competence refers to the technical skills needed to operate an AAC system accurately and efficiently (Beukelman & Mirenda, 2005). When a new AAC system is introduced, it is important for people who use AAC and their communication partners to acquire operational competence as quickly as possible (Light & McNaughton, 2014). This requires instruction in all operational and maintenance aspects of the system. Often, the person who uses AAC is not the primary recipient of much of this instruction, and communication partners may take on much of the responsibility for operational competence (Beukelman et al., 2013). In educational settings, new communication partners are often required to be trained each school year to keep pace with staff turnover and student's progression through classes (Light, 1989). To attain operational competence individuals, need to know how to:

- a) protect the technology against breakage, damage, or other problems, including how to do, or ask for, repairs;
- b) modify the system for future needs, including adding new vocabulary; and
- c) ensure day-to-day accessibility of the system (Beukelman & Mirenda, 2005).

As SGDs increase in popularity, technical ability is increasingly important for communication partners to ensure operational competence (McNaughton & Light, 2013).

***Social competence.*** Social competence refers to skills of social interaction such as initiating, maintaining, developing, and terminating communication interactions (Beukelman & Mirenda, 2005). Social competence requires the person who relies on AAC to have knowledge, judgment, and skills in both the sociolinguistic and socio-relational aspects of communication or ‘rules of engagement’ in different environments, particularly knowing when and how it is appropriate to talk in different situations (Ministry of Education, 2009). These sociolinguistic skills include the abilities to: initiate, maintain, and terminate conversations; give and take turns; communicate a variety of functions (e.g., requesting, commenting, describing); and engage in a variety of coherent and cohesive interactions (Beukelman & Mirenda, 2005).

***Strategic competence.*** Strategic competence involves the compensatory strategies employed by people who use AAC to deal with the functional limitations associated with AAC communication, for example, interacting with those unfamiliar with AAC, resolving communication breakdowns, compensating for a slow communication rate, or getting a message across when the vocabulary needed is not in the AAC system. Instruction in strategic competence involves teaching various strategies, for example, how to use a pre-programmed

phrase to introduce oneself to new communication partners, or how to weigh up efficiency and precision so that a sentence is still understandable, yet communicated in a timely manner (Beukelman & Mirenda, 2005).

## **Language Intervention for Children who use Augmentative and Alternative Communication**

In order to promote and develop these four competencies, there are two primary factors that must be in place. Firstly, the language environment must be communicatively accessible to the child, that is people in the child's environment must recognize that the child needs access to their AAC system in all situations, and with all communication partners (von Tetzchner & Stadscliev, 2016). Secondly, communication partners must be trained in both the use of the AAC system, and scaffolding strategies to support the child.

As most children do not have opportunities to meet or converse with adults who use AAC, in order to optimize the language environment, their parents and teachers must learn the AAC system at the same time as them (Cockerill et al., 2014). Some communication partners become particularly skilled and are able to interact with individuals who use AAC in a supportive and successful manner, however, several studies have shown that without access to training, communication partners often unwittingly act in ways that do not effectively support positive communicative interactions (Kent-Walsh, Murza, Malani, & Binger, 2015).

Communication partners have been noted to:

- a) dominate communicative interactions;
- b) ask predominantly yes/no questions;
- c) take the majority of conversational turns;

- d) provide few opportunities for individuals using AAC to initiate conversations or to respond during conversations;
- e) frequently interrupt the utterances of individuals using AAC;
- f) focus on the communication technology or technique instead of the individual using AAC or their message (Kent-Walsh & McNaughton, 2005)

Interventions that include communication partner instruction may serve to alleviate these issues. Kent-Walsh et al. (2015) conducted a systematic review and meta-analysis of 17 single-case research studies that examined the effects of AAC communication partner intervention. This review showed that aided AAC modelling, expectant delay, and open-ended question asking were the most frequently targeted communication partner interaction skills. The most common strategies used to train the communication partners were instructor modelling, guided practice, and role plays. Analysis of the studies yielded a moderate effect size rating for pragmatic measures, and very large effect sizes for semantic and morpho-syntactic measures (Kent-Walsh et al., 2015). The authors noted that the more comprehensive the communication partner training strategy, the larger the level of the effect. They particularly refer to the communication partner training strategy outlined by Kent-Walsh and McNaughton (2005) in which communication partners are taught to employ target communication skills in a specified multi-step, sequential manner.

Of the targeted communication partner skills described in Kent-Walsh et al. (2015), aided language modelling in particular has received a lot of attention in the literature. Modelling can help AAC users learn the symbols and vocabulary in their AAC system and how to use them to communicate (Wegner, 2012). AAC modelling-based interventions all contain two key features: communication partners modelling AAC; and naturalistic interactions (Sennott,

Light, & McNaughton, 2016). The first feature, the modelling of aided AAC, involves the communication partner pressing symbols on the child's AAC system (or a copy of the child's system) as they are speaking. The goal is that the communication partner 'models' the use of the child's AAC system (Sennott et al., 2016). AAC modelling is differentiated from instructional modelling, in that in instructional modelling the teacher models a particular target word or function. With AAC modelling, the teacher uses the AAC system in the context of a naturalistic interaction; a dynamic, bi-directional, and multi-modal interaction that occurs naturally in the context of the learner's day (Sennott et al., 2016).

Sennott et al. (2016) conducted a systematic review of research examining the effects of communication partner aided language modelling on the language acquisition of individuals with complex communication needs. There were 10 studies included in this review, 9 single-case, and 1 group design. The nine single-case design studies resulted in a data set of 31 participants, with ages ranging from 2 to 12 years. The group design study compared three groups of participants, all aged between 2 and 3 years old. Across the 10 studies, the participants were children who were developing early communicative competencies such as turn taking, vocabulary knowledge, morphology knowledge, and use of multi-symbol utterances. The studies examined in the review reported consistently positive effects on pragmatic, semantic, syntactic, and morphological development for young children who were beginning communicators. Future research was recommended to expand the populations studied and the context of intervention (Sennott et al., 2016).

**Language intervention for children with autism spectrum disorder who use augmentative and alternative communication.** As is the case for all individuals who use AAC, the introduction of AAC to individuals with ASD is based on the beliefs that all people



have a right to communication, that communication is multi-modal, and that improved communication leads to more participation, increased self-determination, and improved quality of life (Wegner, 2012).

Although individuals with ASD are a heterogeneous group, there are several features of AAC that correspond well to the learner profile of individuals with ASD, as seen in the table below.

Table 1.

Matching the strengths of AAC with characteristics of ASD

ASD learner profiles	Features of AAC
Visual learners	Uses visual cues (Logan et al., 2016)
Difficulty with complex cues	Level of complexity can be controlled to grow with the individual (Schlosser et al., 2009)
Difficulty with change	The content is relatively static and predictable, and new vocabulary can be added in a systematic way (Zangari, Van Tatenhove, & Soto, 2009).
Difficulty with the complexities of social interaction	Provides a buffer and bridge between communication partners (Cafiero, 2005)
Difficulty with motor planning	Is motorically easier than speech (Cafiero, 2005)
Anxiety	AAC interventions don't apply pressure or stress (Cafiero, 2005)
Behavioural challenges	By learning a "I need a break" or "I don't want to" message, AAC can provide a clear and functional means to communicate, helping to make challenging behaviours redundant (Wetherby & Woods, 2006)

AAC interventions for children with ASD have largely been drawn from behavioural theory and the tenets of Applied Behaviour Analysis (Light & McNaughton, 2015; Logan et al., 2016).

In behavioural approaches, skills are taught with a pre-determined correct response and a

highly prescribed teaching structure. Examples of these approaches include the Picture Exchange Communication System (PECS) (e.g. Cannella-Malone, Fant, & Tullis, 2010; Travis & Geiger, 2010), and functional communication training (e.g. Olive, Lang, & Davis, 2008). In some cases, behavioural techniques, such as discrete-trial training have been used to teach specific communicative behaviours using AAC (Jones, Carr, & Feeley, 2006). These approaches are usually delivered in a 1:1 clinical setting, by a specialist practitioner.

These behavioural approaches have largely focused on the teaching of behavioural regulation functions such as requesting and rejecting activities and items (Light & McNaughton, 2015). In a review of 20 years of communication intervention studies with individuals with intellectual and developmental disabilities Snell et al. (2010) found that more than half of the studies targeted behaviour regulation. Similarly, of the intervention studies published in the *Augmentative and Alternative Communication* journal over the past 10 years, approximately half targeted simple requests for objects or activities (Light & McNaughton, 2015).

There is a large body of literature indicating that children with ASD are able to learn the communication skills targeted through behavioural interventions (Kagohara et al., 2010; Logan et al., 2016). There are concerns, however, around the generalizability of behavioural intervention outcomes (Prelock & McCauley, 2012). Furthermore, there are concerns about whether a potentially narrow focus in AAC intervention on behavioural regulation functions result in meaningful changes for children with ASD, particularly when these interventions fail to address the social-communications difficulties experienced by these children (Light & McNaughton, 2014).

In response to these limitations, there is increasing interest around the use of social-pragmatic developmental interventions. Social-pragmatic interventions provide a remedy for

these limitations, emphasizing opportunities for people with ASD to engage in social communicative interactions, establish positive social connections and generalize their skills in the natural environment (Prelock & McCauley, 2012). When engaging in interventions following this developmental approach, communication partners follow the child's lead, foster initiation and spontaneity, and reinforce contingent responses (Prizant et al., 2000). The social interactionist perspective considers the individual with ASD, their communication partners, and environmental variables within the intervention plan. From this perspective, communication is dynamic and reciprocal, thus intervention strategies to support communication development must be as well (Prelock & McCauley, 2012).

A review by Logan et al. (2016) found that although the evidence base for social pragmatic interventions is still comparatively small, there is emerging support for the effectiveness of AAC interventions in teaching children with ASD communication functions beyond behavioural regulation. The authors noted a need for further research to improve the quality, quantity, and consistency of the evidence base, as well as its relevance to addressing the most significant communication and learning needs of children with ASD. Logan et al. (2016) further argued that "addressing these issues offers the potential to reduce the social-communication challenges faced by children with ASD to a far greater extent than has been evident in AAC research to date" (p. 11). In order to address the need for more socially-focussed, naturalistic interventions, there are several contextual components that need to be considered in order to maximise success, including the inclusive education model, children's relationships with their peers, and the role of classroom teachers.

## Inclusive Education

Inclusive education is based on the philosophy that schools should, without question, meet the needs of all of the children in their local community regardless of their level of ability, educational need or other form of diversity (Foreman & Arthur, 2014). One of the biggest supporting arguments for inclusive classrooms is the positive benefits of social interaction with other peers without disabilities. Positive peer interaction in a shared learning environment provides a natural context to practice communication skills, strengthen social competence, and develop relationships (Biggs et al., 2017).

New Zealand has one of the most inclusive education systems in the world with less than 1% of children educated in special schools or special units within mainstream schools (Hornby, 2012). This was founded in the 1989 Education Act, which stated that: “people who have special education needs (whether because of disability or otherwise) have the same rights to enrol and receive education at state schools as people who do not” (Ministry of Education, 2010). The *Success for All- Every school, every child* initiative works to support this policy through a set of guidelines and recommendations aimed towards classroom teachers and school leaders (Ministry of Education, 2010). However beyond a general requirement to identify students with special educational needs and implement strategies to meet these needs, schools are left to self-determine how to best include these students (Hornby, 2012).

In working to support children who use AAC, general education teachers are faced with a complex task. They must be the principal facilitators of learning for the children who use AAC in their classrooms, as well as for the rest of the children in the class who also have a wide range of needs and abilities. Teachers must identify appropriate curriculum goals and

determine how these goals can be met by all of their students, including those who use AAC (Kent-Walsh & Light, 2003). This is further made difficult as training for teaching children with diverse learning needs was only made a required component of teacher education programmes in New Zealand in 2011, meaning that teachers may have had minimal or no training on how to support these students (Hornby, 2012). Since communication is fundamental to the educational process, it is essential that all teachers are able to communicate effectively with students with complex communication needs (Kent-Walsh & Light, 2003).

Kent-Walsh and Light (2003) interviewed teachers working in inclusive classrooms about their experiences with children who use AAC. The teachers identified several factors that served as barriers to successful inclusion of AAC in the classroom. In particular, teachers described how their lack of training relating to special education and AAC limited their ability to meet the needs of target children. The participants were also concerned that they were not actively involved in the process of developing individualized educational goals for children included in their classes. Some teachers described themselves as being completely 'out of the loop'. These teachers were also not involved in developing strategies for how goals should be met in the general education classroom.

Teachers also discussed the time required to learn how to use a high-tech AAC system and to plan classroom accommodations. They commented that if additional time was not built into their regular schedules to complete necessary training and planning, it was often impossible to fulfil all of their obligations. Therefore, time was frequently not available to learn about the AAC systems that their students were using. Other barriers found in this study included: lack of student motivation/skill in using their AAC system; placement of children in large

classes; lack of home-teacher-specialist communication/collaboration; teacher-aide training/skill limitations; negative student attitudes; difficulty in modifying curricula; and technology limitations (Kent-Walsh & Light, 2003).

Involving and supporting students with additional needs in the inclusive classroom is not achievable through simply placing the student in a classroom and ignoring their needs, as some teachers have experienced (Kent-Walsh & Light, 2003). Similarly, lowering academic standards for the classroom or deriving parallel standards for some students does not serve as a viable solution (Soto, 2009). Rather, changes must be made at the level of the general curriculum so that all students are provided with opportunity to acquire skills and content at appropriate levels.

One framework that provides a practical way to support teachers in inclusive classrooms is Universal Design for Learning (UDL). Universally designed classrooms respond to and accommodate the needs of all learners by addressing the barriers that can prevent student learning (G Soto, 2009). UDL is supported within New Zealand as 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” (Ministry of Education, n.d.).

Teachers incorporating UDL into the classroom are able to do so at three levels: representation, expression, and engagement. Representation refers to how information is presented to students. It involves using multiple formats to maximise comprehension and accessibility (Soto, 2009), such as utilizing visual displays, or modelling in AAC. Expression refers to the availability of different methods for responding to the instructional content (Meyer, Rose, & Gordon, 2014), such as making sure AAC systems are always accessible and

allowing students to respond to class content using different modes of communication.

Thirdly, engagement includes providing students with an array of options and choices to remain engaged and motivated, as well as fostering a sense of community and belongingness in the classroom (Meyer et al., 2014; Soto, 2009). Through these three components, UDL utilizes learner's strengths and provides a practical way to increase class-wide achievement and engagement.

## **Friendships**

Closely linked to social interactionist theories of language development, are social constructivist theories of friendship. Just as social interactionist theory suggests a transactional relationship in which children learn language through interaction with their communication partners, social constructivism asserts that children learn how to be friends from engaging in social interactions with peers. The reactions and responses of peers shape the success or failure of future interactions (Therrien, Light, & Pope, 2016).

Further, like language, the importance of successful peer interactions is not to be overlooked. Indeed, The World Health Organization (2007) identified attending school, developing interpersonal interaction, and building relationships as some of the most important life areas for children. Positive social experiences can have a cascading effect impacting participation in school, increasing self-confidence, and adding to future success in academics and social relationships (Therrien et al., 2016). Thus, for both language and friendship, opportunity and exposure are essential for the successful development of these skills (Therrien et al., 2016).

Despite recognition of the importance of peer interactions and opportunities for friendship development, research has shown that many children with disabilities, especially those with

complex communication needs, tend to interact mainly with the adults in their environment (Carter et al., 2011). Chung, Carter, and Sisco (2012a) analysed the interactions of 16 children who used AAC in a general classroom environment. They found that 89% of social interactions between children took place only with adults and an additional 6% involved both adults and other children. In contrast, only 5% of interactions involved just peers. Consideration of these findings begs the question: how can children who use AAC learn the skills necessary to develop friendships with peers when only 5–11% of their interactions are with their classmates?

## **Peer-Support Interventions**

Peer support arrangements are an evidence-based intervention for increasing interactions between children with disabilities and their peers in general education classrooms (Biggs et al., 2017). Peer support arrangements involve equipping a small number of peers without disabilities to provide ongoing academic and social support to their classmate with a disability. Children learn together as they work on classroom activities, receiving ongoing support from adults in the classroom. This arrangement has been found to provide children with disabilities with enhanced opportunities to develop social and communication skills, learn from and with their peers, and broaden their peer networks. For peers, it provides the opportunity to shape attitudes toward and raise expectations for their classmates with disabilities (Carter et al., 2011).

Although peer support interventions can be individualized in response to particular children's needs, these interventions usually have four key components:

- a) creating an individualized peer support plan,



- b) recruiting peers from the same classroom,
- c) orienting peers to their support roles
- d) providing guidance and feedback as children work together (Biggs et al., 2017).

Although empirical support for peer support arrangements is strong, and research in this area has included children with a range of cognitive and physical disabilities, there is little evidence available focusing on children with ASD who use AAC (Biggs et al., 2017). In a recent review by Chung, Carter, and Sisco, (2012b) seven studies were identified that had been conducted with children with ASD using AAC, however three of the studies were judged inconclusive, and three suggestive, with only one study (Hughes et al., 2011) found to have conclusive evidence. The authors argued that more research is needed to establish an evidence base in this area.

Biggs et al. (2017) suggested that peer support arrangements may offer an avenue for mitigating the social barriers that children who use AAC experience in inclusive classrooms. They argued that children who use AAC's interactions are dominated by adults because peers may not know how to interact with a classmate who uses AAC. Secondly, paraprofessionals, such as teacher aides who support children in the classroom may inadvertently hinder interactions with peers. Their presence may mean that a child who uses AAC has no need to seek assistance from peers, and the peers may feel self-conscious having to pass the 'barrier' of the teacher-aide to engage with the student using AAC (Giangreco, 2010). However by establishing a peer-support arrangement, supported by communication partner training, the teacher-aide role can be shifted to being more facilitative, decreasing over-reliance and minimizing the perceived social barrier (Biggs et al., 2017). Indeed Chung et al. (2012b)

suggested that equipping communication partners with adequate skills and knowledge may serve as a critical element—or even a prerequisite—to promoting interaction outcomes for students with complex communication needs.

Despite the potential of peer-support arrangements to increase social communication and interaction, consideration must be given to the way in which a successful arrangement is structured, with particular reference to the transactional theory of friendship. This theory understands equality to be one of the five relationship properties necessary to distinguish relationships of acquaintance from those of friendship (the others being similarity, mutual liking, closeness, and loyalty). That is, for children to have a true friendship, there needs to be a largely equal give and take to interactions (Therrien & Light, 2016). While the use of peer-mediated strategies may successfully increase communication between the two children, there is the potential to establish an inequality in the relationship that negatively impacts friendship development. Peer support arrangements have typically assigned the children unequal roles in the relationship: the peer became the helper, while the child who used AAC became the recipient of help. Although many children need help in school, it is atypical for any one student to always be on the receiving end of help (Carter et al., 2014). If the ultimate goal of increasing social interaction is to support friendship development, then interventions that promote equal status relationships are required (Therrien & Light, 2016).

Trembath, Balandin, Togher, and Stancliffe (2009) conducted a study where six preschool peers were taught to implement a peer-mediated naturalistic intervention with 3 children with ASD, with and without a SGD, during play sessions. They found that when a dyad of helper and ‘helpee’ was established, the peer willingness to engage was largely dependent

on whether they, in trying to engage in a transactional interaction, received reciprocal attention:

“The peer-mediators interacting with Shane and Aaron often received no discernable response and therefore required more consistent encouragement from the researcher to continue trying to implement the procedure. The lack of reciprocity may have reduced the effectiveness of the intervention by creating a greater reliance among the peer-mediators on the researcher prompts to continue implementing the intervention”. (p. 183)

To combat this, it has been suggested that providing communication partner training to a whole class of children may alleviate the pressure placed on helpers in a peer support dyad, as well as increase the generalization of social skills and number of interaction opportunities (Laushey & Heflin, 2000; Trembath et al., 2009).

## **Partnering with Teachers**

Collaborative consultation has been described as a systematic process of planning and problem solving that involves team members from diverse backgrounds. Educational team collaboration with expertise covering the AAC system and interaction strategies, the classroom setting and curriculum, and the individual needs of the student, has been discussed as critical to successful inclusion of children who use AAC (Kent-Walsh & Light, 2003). Hunt et al. (2002) evaluated the effectiveness of collaboration to increase classroom engagement, academic progress, and social interaction for children who used AAC in an inclusive classroom. The teacher, special education teacher, teacher aide, speech language therapist and parent collaboratively developed a plan to integrate communication, academic,

and social supports. The intervention was found to decrease disengaged behaviour and increase social interaction and AAC use. However, few other experimental studies have addressed the extent to which collaborative planning of support strategies can enhance the use of AAC in inclusive classrooms, with Biggs et al. (2017) identifying a need for further research in this area.

When implementing changes to teacher practice, it is important to consider the role of the specialist and the teacher in the success and maintenance of the intervention. Timperley, Wilson, Barrar, and Fung (2008) conducted a review of professional learning and development programmes and created a best evidence synthesis of the kind of professional learning for teachers that strengthens valued outcomes for diverse learners. They found that a large proportion of interventions focusing on teacher practices involved outside experts developing recipes for teaching (typically based on research about what works for children) then presenting prescribed practices to teachers with an underpinning rationale. The experts then monitored the implementation of these practices carefully to ensure integrity. While these processes can be effective in changing teaching practices, they are typically less effective than those that involve working with teachers in more iterative ways, involving them in discussion and considering the meaning of the intervention for their classroom. A review by Mitchell, Morton, and Hornby (2010) found that “teachers represent the largest and most knowledgeable resource in programming for the needs of students. The quality of their relationship with parents/carers and community agencies plays a large part in the overall outcomes for students” (p. 36).

The importance of teacher engagement and collaboration is particularly evident when assessing the social validity of an intervention and the degree of maintenance that occurs

once specialists withdraw (Timperley et al., 2008). Considerations of social validity enable interventionists to better understand the perceived importance of the goals of intervention, the acceptability of intervention procedures, and the significance of associated effects (Logan et al., 2016). Horner et al. (2005) emphasized the importance of including measures of social validity to ensure interventions result in real-life functionality. Although recognized as an important aspect of AAC interventions, social validity largely has been overlooked in evaluations of AAC outcomes (Logan et al., 2016).

## **Summary**

This literature review examined current theories of language development for children developing spoken language, and the differences and similarities inherent in language development for children who are learning to use AAC. The importance of optimising communication partner interactions was highlighted with particular attention to the need for aided language modelling. Next, the influence of social communication characteristics associated with ASD were explored, with reference to the current call in the literature for more naturalistic, socially-focused AAC interventions. The New Zealand context and the model of inclusive education were then considered, as well as the barriers and supports known to affect the integration of AAC in the inclusive classroom. These included factors such as peer relationships and collaborative partnerships with teachers. All of these considerations have influenced the design of the intervention implemented in the current study. The details of the intervention and the case study design methodology employed will be discussed in the following chapter.

## CHAPTER THREE:

### Methodology

This chapter details the methodology utilised in this research. It begins by providing a rationale for the selection of a case study research design, considering the strengths of the design, as well as the limitations and how these have been mitigated. The chapter continues by discussing the recruitment process, and provides an introduction to the setting and participants. The study procedures, including phases of the study and their timeframes are then explained, before a detailed discussion of the data collection methods and analysis framework. The chapter concludes with a summary of the ethical considerations of the study.

#### Research Design

The aim of this study was to explore the outcomes of working collaboratively with a classroom teacher to implement a whole-class intervention, which involved training classroom peers to act as communication partners for a child who uses AAC. This required an in-depth exploration of the AAC awareness and competence of everyone involved: the teacher, the classroom peers, and the student who uses AAC. The research also required a design that allowed a level of responsivity to the needs and dynamic environment of an inclusive classroom. Case-study research design was selected as the best way to meet these requirements. A case study is an empirical inquiry that investigates a contemporary phenomenon in depth within a real-world context (Yin, 2014).

Case-study design is preferable over experimental design when there are important contextual conditions influencing the outcome of the phenomenon, and thus the boundaries

between context and phenomenon are not clearly defined (Yin, 2014). The design has the capacity to combine a rich exploration of the phenomenon - the *what* - with the evaluation – of *why* - this phenomenon occurs (Denscombe, 2014). It is possible to gain a specific understanding of the *how* effects of an intervention within a wider ecological context. In doing so, different types of case study design can fulfil a number of different purposes that are too complex for other methods (Yin, 2014). Case study designs may be explanatory, explaining causal links in real-world interventions; or exploratory, in situations in which the intervention being evaluated has no clear outcomes. Case studies may also be largely descriptive, as seen in this study, where an intervention and the real-world context in which it occurred are described and discussed.

A further strength of case study design is the opportunity to use several diverse sources of evidence (Yin, 2014). The need for this in case study research exceeds that in other research methods such as experiments or surveys (Yin, 2014). In experiments for instance, data is largely limited to the measurement and recording of behaviours, whereas survey research tends to be the opposite of this, emphasizing participants' opinions and perceptions. Case study research is able to focus on both recording behaviour and verbal information, and in this way, shows particular advantage in being able to illustrate converging lines of inquiry, whereupon multiple sources of evidence essentially provide multiple measures of the same phenomenon (Yin, 2014).

Case studies are understood to serve an important role in the study of language development and the description of language disorders and associated interventions, including AAC (McEwen & Karlan, 1990). They provide an achievable means by which practitioners can evaluate their interventions without having to recruit large groups of children to intervention

and control groups, which can be challenging in everyday working contexts (Vance & Clegg, 2012).

Although case study design is recognised as a distinctive form of empirical research, some researchers have criticised the method due to a perception that it lacks systematic rigor, that it is difficult to generalise the findings, and involves unwieldy amounts of data (Yin, 2014). In order to mitigate these concerns, the following chapter lays out details of the systematic procedures and robust data analysis framework that were employed.

The boundaries of the case study at the centre of this research were defined as including a teacher and her classroom of students, one of whom had complex communication needs and used AAC. The teacher taught within a Modern Learning Environment (MLE) with four other teachers. The students moved throughout the MLE for different activities, but each student belonged to a 'home pod'. The number of students in the study was limited to the target teacher's 'home pod'. This ensured the design could be replicated within a traditional classroom environment; it also provided boundaries for data collection. Two additional adults were involved in the case: a teacher aide, and a behavioural therapist.

## **The Research Question**

The research question was as follows:

1. What are the outcomes of an intervention that consists of collaborative planning and peer support arrangements for a student who uses AAC in an inclusive classroom?



## Setting

This study took place in a primary school in a small New Zealand city. The school has a roll of approximately 450 students, approximately 20 of whom are identified as having high learning support needs through the Ongoing Resourcing Scheme (ORS) funded by the Ministry of Education. The school employs one full-time, and one part-time special education teacher and over 20 teacher aides.

## Recruitment

This school was selected due to geographical convenience, and its proportionally high number of students with complex communication needs. An introductory letter was presented in a meeting with the school's principal (see Appendix A) and initial consent was gained (see Appendix B) to enter the school and begin liaising with the school's SENCO.

Two potential participant teachers were identified who met the criteria of having a student in their class who used a high-tech SGD as their primary means of communication. The SENCO decided to approach the teacher of the younger class of children as she felt that any learning gained from participating in the study would remain in the school, as opposed to involving students who would be moving to secondary school at the end of the year. The SENCO provided the teacher with an Information Sheet and consent form (see Appendix C and D) and she agreed to participate.

The intervention was designed to fit into established daily classroom practices so that there was no disruption to classroom learning. The teacher sent an Information Sheet and consent form to the parents of all of the children in the classroom, including the family of the child

who had complex communication needs and used AAC (see Appendices G, H, I, J, and K). All of the families gave consent for their children to participate, except for the family of one of the peers. This student was still able to participate in the activities and continue learning and engaging with the class, however the student was not videoed and no data was recorded.

Information sheets and consent forms were also shared with the teacher aide and the behavioural therapist (See Appendices E, F, L, and M). Both agreed to participate.

## **Participants**

The participants in the case study included Jen, the classroom teacher, and her class of Year 3 and 4 students, of which one, Alex, used AAC to communicate. Sophie, a Teacher Aide working within the classroom also participated in the intervention. Amanda, a private behavioural therapist who worked with Alex at home and at school, was also recruited as a participant to provide contextual and background data on Alex's communication use and ability.

**Jen.** Jen is a classroom teacher who has been teaching for five years, all of which she has spent working at the participant school. Working in an inclusive environment, she has consistently had students in her class with additional learning and behavioural support needs. She has previously had one student in her class who used AAC.

**Alex.** Alex is an eight-year-old male student in Jen's class. He was diagnosed with ASD at the age of three and receives funding under the Ministry of Education ORS Scheme as a student with high learning support needs. This funding allows him to have full-time teacher aide support while he is in the classroom. Alex works within the MLE environment for the first two

blocks of the school day, and participates in separate activities, including cooking and music, in the afternoons, alongside other children with high support needs.

Alex has not developed any functional spoken communication as yet, and so uses an AAC system as his primary mode of communication. He used a low-tech core-board system for the last two years; however, in consultation with TalkLink Trust, this was changed to a high-tech system called Speak4Yourself in December last year. TalkLink Trust is New Zealand's AAC and assistive technology assessment service. Speak4Yourself fulfils the criteria for a robust communication system laid out by Zangari et al. (2009) in that it is a linguistically based system, with sufficient and appropriate vocabulary, including core words and access to morphological variations.

Outside of school, Alex receives further support in sessions with a private speech-language therapist once a week. In addition, he receives Applied Behavioural Analysis therapy which takes place three times a week.

**Peers.** Alex's class peers are 24 students in Years 3 and 4. This class, known as a 'home pod' operates within a MLE, alongside four other home pods. As an inclusive environment, there are a number of children within this MLE with additional learning and behavioural support needs.

**Sophie.** Sophie is a teacher aide who has worked at the school for 2.5 years. She is currently based in Jen's classroom to provide primary support to Alex, and a further student who has learning support needs. As needed, she also works with other students in the classroom. She has previously completed an introductory AAC professional development workshop and participated in an AAC student communication day, both hosted by the TalkLink Trust. She

has experience with low-tech core-boards and through Alex, has been introduced to the high-tech system.

**Amanda.** Amanda is a behavioural therapist qualified in providing Applied Behavioural Analysis (ABA) therapies to children with ASD and behavioural support needs. She has worked as an ABA therapist for the past 16 years, and currently works independently, as well as being engaged to carry out programmes and activities devised by specialist ABA services. She has worked with Alex for two years. She has experience working in low-tech AAC systems including core-boards and PECS, as well as various high-tech systems.

**Researcher.** In qualitative research, it is important for the researcher to engage in reflexivity, and acknowledge the skills, biases, and values that influence the researcher's positioning within the study, and the outcomes of the study itself (Creswell & Poth, 2017). The researcher has previously worked for five years as a practitioner conducting ABA programmes with children with ASD. This position included working with both low and high-tech PECS, low-tech core boards, and high-tech SGDs. The researcher's position entailed taking children out of the classroom to work on a one-to-one basis, whereupon the limitations of this approach became increasingly realised. This experience, combined with an increasing understanding of the AAC research literature, was the impetus behind this study.

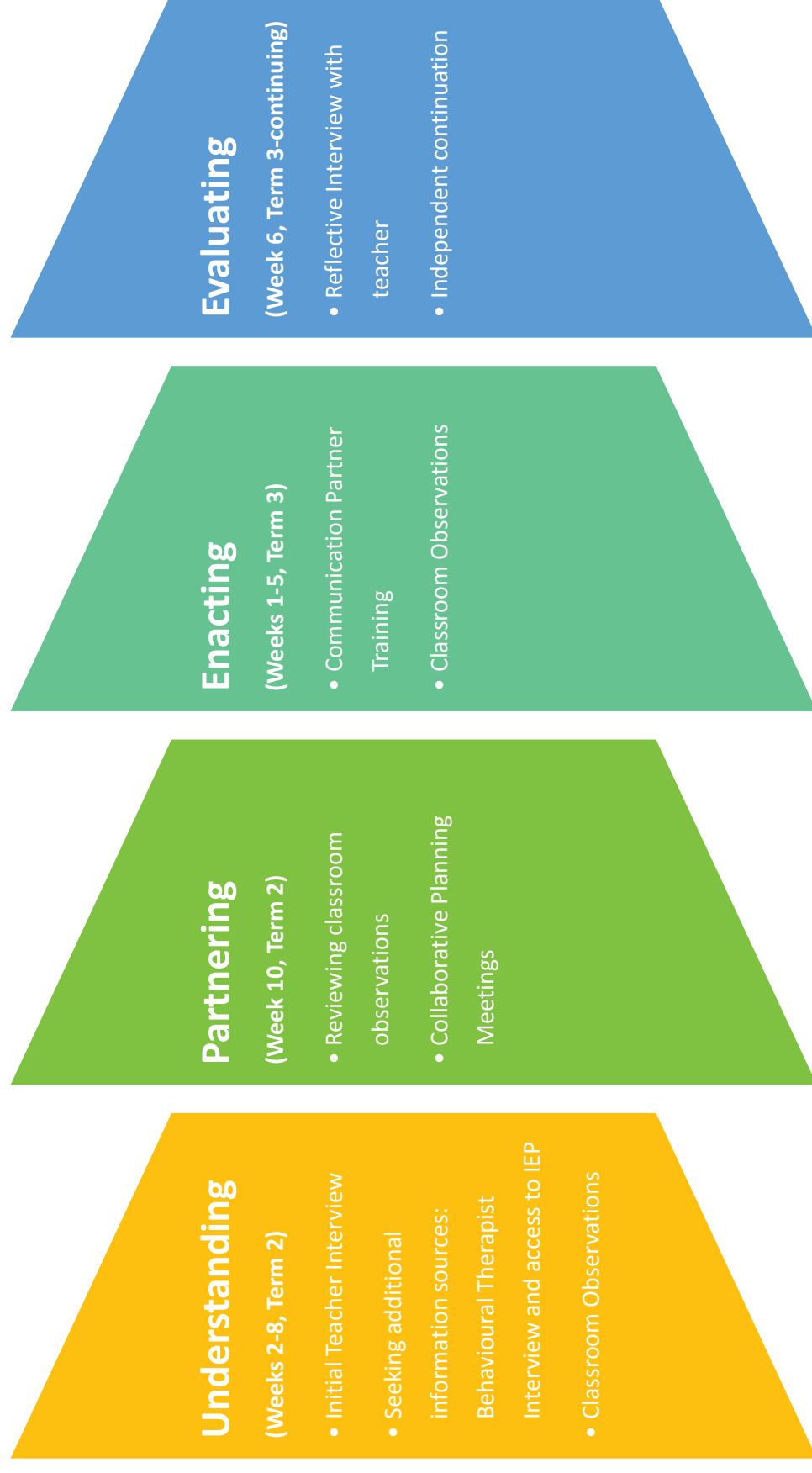
The researcher's experience of working as a practitioner, as well as her knowledge of the research literature, meant that the researcher was able to act in a position of support for the teacher. As such, during the course of the intervention, the researcher held various roles including collaborative partner, and practitioner, as well as researcher. The flexible nature of the case study design meant that these roles sometimes overlapped, particularly at the start

of the intervention, where one session would involve the researcher videoing the interaction, whilst also providing support to peers in how to operate the AAC system and guiding the teacher in how best to facilitate the conversation structure. Over the course of the study, as the agency of the teacher and confidence of the students increased, there was a gradual shift towards decreasing the researcher's participant role in the study. Throughout the study, particular effort was made to remain self-aware of the researcher's involvement, and to ensure that in the following chapters, this positioning, and any effect on the study as a result of this positioning, was considered and made explicit.

## **Study Procedures and Timeframe**

The study was conducted over Terms 2 and 3 of the 2017 school year. It consisted of four phases, as illustrated by Figure 1. The procedures within each phase are outlined below.

Figure 1. Intervention phases and timeframe.



**Understanding phase.** The initial collaborative planning meeting between the participant teacher and researcher was conducted in Week 2 of Term 2, for 30 minutes, to discuss the scope of the study, and to understand the current learning structures and presence of AAC in the classroom.

The baseline observation phase took place in Weeks 5-8 of Term 2. Six observations of the current twice-weekly news-sharing structure were completed, with allowance made for an instance of teacher absence. As well as video-recording these observations, supplementary field notes were taken to record the context and researcher perceptions of the activity.

Further sources of data, including access to Alex's IEP, and an interview with a behavioural therapist that has worked one-to-one with Alex for two years, were also gathered during this phase.

**Partnering phase.** The Partnering Phase took place in the last week of Term 2, where through a series of meetings and email conversations, the strategies and content of the intervention were developed. The collaborative nature of this process meant that it was responsive to the needs of the classroom and to any changes within the classroom. The detail presented below demonstrates the dynamic nature of the process.

***Initial review meeting.*** A review of the classroom observations and the other data that the researcher had gathered so far was conducted between the researcher and participant teacher on the Wednesday of Week 10, Term 2, for 30 minutes. This review was structured into three sections:

1. A discussion of the current news-sharing structure including its strengths and purpose;
2. A review of Alex's participation within that programme, using the video-recorded observations; and
3. Consideration of the goals and outcomes that were wanted from the collaborative intervention.

Jen had indicated during the Understanding Phase that she had a low level of professional knowledge around AAC. For this reason, the researcher prepared for this meeting by accessing some key resources to share with Jen. These included relevant literature from the *Learning through Talk* (Ministry of Education, 2009) resource, highlighting the relationship between oral language development and the New Zealand Curriculum, an excerpt from Gloria Soto and Starowicz (2016) which details the importance of narrative language as a social and academic function, and J. Kent-Walsh and McNaughton's (2005) communication partnering training guide. A conversation plan was also devised to help guide the structure of the conversation (see Appendix Q).

During the meeting, the rationale behind the current news-sharing activity was first discussed. Jen explained that it had been put in place as a way to allow students to get anything off their chest before they engaged in learning for the day. In doing so, this activity was designed to foster a sense of community in the classroom, as well as to allow Jen to know what was going on in the students' lives. The activity further represented an effort to develop public speaking skills.

Videos from the observations of this activity were then discussed and reviewed. Jen supported the researcher's observation that Alex showed a low level of engagement during this activity and further noted that this was typical during class activities. The role of



questions in the activity were discussed: Jen had added them into the activity as a way to keep the students engaged in each other's news. She agreed that the questions could be done straight after a share, rather than waiting until the end of the activity.

After the review of the activity in its current form was completed, the discussion turned to how an AAC intervention could be incorporated into the activity, preserving the important socio-cultural purpose of the activity as identified by Jen, but making it more inclusive and accessible for Alex.

Firstly, access to technology was agreed upon, with Jen offering up the use of the class iPads so that the other students in the class could have access to the Speak4Yourself system. Jen said that the students had access to the iPads throughout the day, and this would be continued during the intervention so that the students had constant access to AAC if they wanted to use it. Jen volunteered the use of the class TV to teach the use of the system, using a mirroring programme to replicate what was on the iPad on the TV so that all of the students could see how it was used.

When discussing the structure of the intervention, Jen suggested the 'donut' seating structure, that she had used in previous class activities, where students sit in a concentric circle facing each other. Jen agreed that the topic of news-sharing could be made open with students able to choose any topic, including bringing an item from home or a picture to talk about. It was noted by the researcher that pictures or items may be particularly useful for Alex, as even if he does not initially share, other students can ask him questions about it.

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When discussing how the intervention would be taught, Jen suggested that it would be good for the researcher to come in as an 'expert' to teach the students, and that she felt this was something they would respond to. Jen suggested that the students who currently acted as Alex's 'helpers' would be suitable to teach in a small group first, and then those students could help the rest of the class. It was agreed, after suggestion from the researcher, to use the term 'AAC experts' rather than helpers, so as not to place the focus overtly on Alex and to preserve the opportunity for authentic peer relationships by avoiding role inequality (Carter et al., 2014).

This initial meeting concluded with Jen and the researcher agreeing to think over the points raised during the meeting, and then to come up with further ideas for the intervention enactment. During this time, the researcher drafted an intervention plan showing what aspects of the intervention had been discussed and decided, and what decisions still needed to be made, a sample of which is shown in Figure 2. Email conversations also took place during this week, to discuss the upload of the Speak4Yourself system onto the class iPads.

***Final planning meeting.*** The intervention planning meeting then occurred on the Friday of Week 10, where remaining decisions detailed in the draft intervention plan were finalised. The communication partner instruction system devised by Kent-Walsh and McNaughton (2005) was also presented in the meeting by the researcher and adaptations were made to suit the individual needs of the classroom. This included deciding to focus on the operational requirements of the AAC system first to establish it as 'fun', before introducing the modelling and the conversational structure. A formal intervention plan (see Appendix R) was then written up by the researcher, and confirmed with Jen. The researcher and Jen agreed that

the format and content of the sessions were flexible in response to changing needs in the classroom.

*Figure 2. Sample section from drafted intervention plan*

Draft Intervention Plan from Conversation 05/07/2017		
	Sorted	Still to decide
How the news-sharing time will look	<ul style="list-style-type: none"> <li>• Donut class format</li> <li>• One iPad between pairs</li> <li>• Can speak about any topic. Option to bring in an item from home or a picture (note: <u>large range</u> of pictures of [REDACTED] available on school iPads)</li> <li>• Questions to develop story straight after initial share</li> <li>• Occurring Monday-Thursday mornings, 9am</li> </ul>	<ul style="list-style-type: none"> <li>• Stationary vs. Rotating: sharing news with just one person or more?</li> <li>• One <u>share</u> their news verbally, then swap, or swap for next share?</li> <li>• Option to mention in [REDACTED]'s home book that this is what we are doing, and that if there is ever anything items he may like to talk about, can bring in.</li> <li>• Donut for initial learning week or permanent? (is there a need for teacher to use this as an opportunity to hear if there is any big news that may affect learning).</li> <li>• Whether to teach kids any explicit strategies around AAC e.g. expectant pause, or just get kids familiar with system.</li> </ul>

*Enacting phase.* The Enacting phase consisted of three communication partner training sessions and 13 news-sharing sessions over the span of 5 weeks. The sessions were further refined in response to Jen's needs and understanding of her classroom. The procedures undertaken in this phase are described below.

#### *Communication partner training sessions*

*Session 1: Small group.* The structure of these teaching sessions was determined in collaboration with Jen, and what she felt would best suit the needs of the classroom. The first of these sessions was conducted in a small group format with the researcher and four students selected by the teacher to become 'experts in AAC'. In this session, the students

discussed the nature of communication, and its different forms including AAC. They were each given an iPad with the Speak4Yourself system on it, and shown how to select symbols, use the search and typing functions, make the system speak, and delete sentences after speaking. They then completed an activity where they had to find words describing pictures shown to them, including “cat swimming” and “dog riding bike”, moving from finding one-word symbols to constructing two and three-word phrases. Students were given further time during the school day to practise using the AAC system before the next session.

*Session 2: Small group.* In this session, the AAC experts reviewed their operative skills from the day before and were introduced to the concept of modelling as a method for helping other people learn AAC in their role as experts. They were introduced to a conversational structure in line with Carter and Maxwell (1998) to support the sequence of the interaction in case of a lack of natural response, consisting of:

1. **Model** the AAC system to share your news.
2. **Invite** partner to share his/her news “your turn”.
3. **Wait** for partner.
4. **Respond** to partner’s communication (Make a comment, Ask a question).
5. If partner doesn’t respond, **Model** a response: “you could say ...”

*Session 3: Whole class.* In this teaching session, the whole classroom was introduced to the Speak4Yourself system. The teacher introduced different types of communication and explained that they were all going to work to become AAC experts. She then introduced the researcher to demonstrate how to use the system on Apple TV. Next the class got into groups of four, with one ‘AAC expert’ per group and one group with the Teacher Aide. The groups

practised using the system as a group to find single words to describe pictures shown on the TV screen, before moving to two and three-word utterances.

The class then moved into a 'donut' structure, sitting in two concentric circles facing each other, to learn the conversation structure. The students conversed with the peer facing them, with one iPad for each pair. Visual supports in the form of posters were put up on the whiteboard and the classroom walls to reinforce the steps of the conversation. Students could share news of a past or present event, talk about a hobby or item they liked, or bring in an item to discuss with their peers.

***News sharing sessions.*** In these 15 sessions, the class worked in the donut format and shared their news or stories using the AAC systems and the conversation support structures they had learnt. The sessions occurred between 9-9.20 on a Monday, Tuesday, and Thursday morning during the intervention. In the Partnering Phase, sessions were planned to occur every day, however, school-wide assembly and team PE activities on the other mornings prevented this. During the Engaging Phase, Jen and the students could engage or incorporate AAC in any other activities across the day.

**Evaluating phase.** The Evaluating Phase began after the Enacting Phase when the researcher had stepped out of the classroom and away from the role of direct support. An interview was conducted with the participant teacher one week following the end of the Enacting Phase to reflect on the outcomes of the collaborative intervention, as well as the future presence of AAC in the classroom.

## Data Collection

To maximise opportunity for convergence of evidence, various sources of evidence were obtained during each phase of the intervention, as illustrated in Table 2. A description and rationale for each of these data collection sources is given below.

Table 2.

Data collection sources across intervention phases

		Understanding	Partnering	Enacting	Translating
Data collection	Semi-structured interviews	✓	✓		✓
	AAC system data	✓		✓	
	IEP	✓			
	Observations	✓		✓	

**Semi-structured interviews.** Interviews are one of the most important sources of case study evidence (Yin, 2014). They may differ from interviews in other research designs in that they more resemble guided conversations than a structured inquiry. The benefit of interviews over other forms of qualitative data collection is that they allow the researcher to further develop variables of interest, to place the data into context, and to make sense of people's behaviour, opinions, values and feelings. They provide an opportunity to get an explicit explanation of observed data that may otherwise be left to the researcher's interpretation (Patton, 2015).

Semi-structured interviews exist within a continuum that ranges from pre-planned, standardised interviews, to an informal, entirely open conversation (Punch, 2014). They are prepared with a list of issues and direction in mind, however there is room for the interviewer to be flexible in terms of the order in which the topics are discussed, and to let

the interviewee develop ideas and elaborate on the issues raised by the researcher (Denscombe, 2014).

In this study, two semi-structured interviews were conducted with Jen at the Understanding and Evaluating Phase of the study. Although more conversational, semi-structured questioning also took place during the collaborative intervention planning meetings. A further semi-structured interview was carried out with Alex's behavioural therapist, Amanda, during the Understanding Phase.

Interview guides were prepared beforehand (see Appendices O and P) to make sure all of the important issues were raised, whilst leaving room to explore, and ask questions to further develop information-rich areas (Patton, 2015). By working to an interview guide rather than a standardised set of questions, the interview questions were worded naturally and in context, and a focussed, conversational style of dialogue was established, fitting with the collaborative nature of the study.

***Audio recording.*** Each interview was audio recorded using the researcher's cell phone, placed on the table between the interviewer and interviewee. Recordings were downloaded onto a laptop computer for analysis. A copy of the narrative description of the interviews were sent to each interviewee for verification of accuracy and final approval. Participants were free to request that specific information be omitted from the findings.

**Individual education plan.** As a form of documentary data, access to Alex's most recent IEP was obtained to gather information about his use of AAC in the school context, and the goals and strategies that were in place to support his AAC development. The IEP served to triangulate Jen's interview and the observation data.

**Data from the AAC system.** The saved data from Alex's AAC system was used as a physical artefact method of data collection. It provided a concrete data point to show exactly what Alex was communicating.

**Observations.** In naturalistic observation, observers neither manipulate nor stimulate the behaviour of those they are observing so that the behaviour observed occurs as it naturally would (Punch, 2014). Advantages of observation include the ability to collect direct, efficient data of people's actions, which may be distinct from what they say are their actions (Yin, 2014)

Within this case study, observations were carried out in the Understanding Phase to gain baseline data of the current news-sharing structures in place, the social interactions between students and the extent of AAC use in the classroom. During the Enacting Phase, field notes were used to collect behavioural data on the levels of engagement and participation shown by students, as well as any supports and barriers to the enactment of the intervention, as they appeared.

## **Data Analysis**

The collection of qualitative data in case study research is common, and there are a myriad of approaches and theoretical frameworks that can be employed for data analysis (Thomas, 2006). Coding of the data helps to align the different data source types in a way that makes them comparable, and allows the researcher to identify patterns and themes within the research (Yin, 2014). Codes are initially assigned to chunks of data, including phrases, perceptions and observations. Codes can be developed either deductively or inductively. Deductive codes are developed within an established framework, such as that given by the



research question or a particular theory, whereas inductive, or 'open' codes emerge from the raw data (Patton, 2015). The initial coding process results in a high number of different codes, allowing the researcher to engage in data reduction and simplification, as well as making new connections between concepts. Applying codes to raw data further enables the researcher to begin examining how their data supports or contradicts the theory that guides their research, as well as the current research literature (DeCuir-Gunby, Marshall, & McCulloch, 2011). A code book can be developed to define and exemplify the codes present to best show potential for condensation of codes into major themes. These themes may then be used to develop a model or theory to present the data to answer the research question. Coding is a circular process where the exact wording and definitions assigned to the codes may be reviewed and revisited several times in response to reconceptualization of the data and its relation to the research question (DeCuir-Gunby et al., 2011).

**Data analysis procedure.** In this study, the explorative nature of the research question provided opportunity for open and unconstrained coding. As noted by Gibbs (2008), the researcher's prior experience and knowledge of the research literature in this area meant that complete objectivity was unrealistic. However, attempts were made to draw out the data without overlaying preconceptions. The procedure undertaken to derive these themes largely followed the general inductive approach described in Thomas (2006). The steps were as follows:

1. **Preparation of raw data files (data cleaning):** To prepare the data for coding, all interviews were fully transcribed, videoed observations were reviewed, interactions between peers were transcribed, and any further perceptions were added to the field notes taken at the time. Data from Alex's system was also matched against the

transcribed interactions, to ensure that all communication was noted. The field notes from observations, interaction transcripts, and AAC system data were put into a common format within a comparative table, an example of which is given in Figure 3.

2. **Close reading of text:** The raw text was re-read in detail to give a sense of the interviews and interactions overall.

**Figure 3. Example of data cleaning of observation, system and field note data.**

	Observation transcript	Device data	Field notes
17/8	<ul style="list-style-type: none"> <li>Supported "I am jumping on trampoline"</li> <li>Sophie (TA): Alex would you like to share your news?"</li> <li>Alex: "yes"</li> <li>Then deletes pre-set up news and rewrites</li> <li>"I trampoline jumping"</li> <li>Sophie: that's great Alex</li> <li>Alex: Repeats unprompted three time "I trampoline jumping"</li> <li>Alex (scrolling through Sophie's phone): finds milk picture "milk"</li> </ul>	"I am jumping on trampoline yes I trampoline jumping I trampoline jumping I trampoline jumping milk"	<ul style="list-style-type: none"> <li>Alex very excited by high interest picture.</li> <li>Sophie gave support to set up "I am jumping on trampoline" by saying each word aloud for Alex to find and write independently, before going to sit on other side of classroom</li> <li>Aisha led sharing, Alex kept pressing jumping trampoline, until got response</li> <li>Alex allowed to choose picture he wanted from Sophie's phone- chose trampoline pic. Kept scrolling and found milk picture</li> </ul>

3. **Creation of categories:** Phrases and sentences within the text were summarised into their core meanings. This resulted in the identification of 20 different categories, examples of which are shown in Appendix T. Examples and descriptions of these categories were then formatted into a coding book. All data that did not relate to the outcomes of the intervention was grouped together in a separate document and synthesized, rather than being coded thematically. This data, largely gathered during the Understanding Phase contained important information on Alex's communication ability and the presence of AAC in the school prior to the Enacting Phase, and as such has been included at the beginning of the Results section to provide context and comparison. Limitations identified as the study progressed were also identified and recorded within this process. Where categories were shown to have a high degree of overlap or redundancy, they were combined into a new category, for instance

*development of teacher competence* and *increased confidence* were assimilated into *increasing agency*. This process resulted in a coding book of 16 categories (see Appendix S). The relationships and connections between these categories further allowed for them to be collapsed into major themes, as also shown in Appendix T.

**Triangulation.** To ensure accuracy of data analysis and interpretation, efforts were undertaken where possible to ensure data triangulation. Triangulation was achieved firstly in the Understanding phase by comparing video observations, the field notes taken at the time, and data for Alex's AAC system to ensure they reflected a 'single reality', i.e. that the events were rendered accurately, as shown in Figure 3. This 'reality' was then compared to Jen's initial interview transcript, and Amanda's interview to ensure that the researcher's perception and understandings developed from this data were supported and any discrepancies were identified. In the Partnering phase, Jen was shown some of the videoed observations from the Understanding Phase to confirm whether she felt they were an accurate depiction of the events, and of Alex's typical behaviour in the classroom. In the Enacting Phase, video observations, the field notes taken at the time, and data for Alex's AAC system were again compared to check for any inconsistencies. Lastly, the final interview transcript with Jen in the Evaluating phase was used to support the developments identified in the Enacting Phase.

## **Ethical Considerations and Procedures**

The planning and implementation of this case study was guided by the Massey University Code of Ethical Conduct for Research, Teaching and Evaluations involving Human Participants

(Massey University Human Ethics Committee, 2015). Approval was obtained from the Massey University Ethics Committee prior to commencement of the research (see Appendix N).

Informed written consent was obtained for all of the participants. Participation in the study was voluntary, which was clearly stated in all of the Information Sheets and all participants were advised that they could stop participating at any time.

As a reflection of the cultural considerations of this study, and in acknowledgement of the Memorandum of Understanding the school has with their local iwi as a commitment to uphold Treaty obligations, the researcher consulted the Te Ara Tika guidelines for Maori research (Hudson, Milne, Reynolds, Russell, & Smith, 2010) and engaged in personal consultation with an experienced Maori researcher. Guidance arising from these consultations lead the researcher to extend an offer to the local iwi to further discuss the research if desired.

To protect the confidentiality and anonymity of the participants, all transcripts and observation notes were de-identified, and pseudonyms were used in the presentation of findings. Consent forms were securely stored in the researcher's supervisors' office, and all other data was stored securely on password protected computers.

At the time of the intervention, the researcher held a position carrying out behavioural therapy services for another student at the participating school. To prevent any risk of coercion or affected researcher objectivity— i.e. that the family the researcher worked with may participate because they feel they should, or the researcher's background knowledge and emotional connections would affect perception of the case—this was discussed with the

school before the commencement of the study, and care was taken not to select this child's class for the case.

## **Chapter Summary**

This chapter provided description and justification of the case study research design and why it was selected for this study. The context of the study was established through description of the participants and setting. The procedures and data collection methods in this study have been comprehensively described, as well the framework used to analyse this data. Efforts taken to ensure this study was conducted in an ethical and methodologically robust manner have been further highlighted. The following chapter presents the data collected, and provides a thematic analysis of the intervention outcomes.

## CHAPTER FOUR:

### Results

The aim of this case study was to describe the outcomes of an intervention that consisted of collaborative planning and peer support arrangements for a student who used AAC in an inclusive classroom. This chapter presents the results of the case study. Firstly, data from the Understanding Phase is presented to set the context for the case. Secondly three key themes, which emerged over the course of the Partnering, Enacting, and Evaluating Phases are outlined and discussed. These themes were enhancing participation, creating a communicatively accessible classroom, and supporting teacher agency. Their relation to the chronology of the study are indicated in Table 3.

Table 3.

Themes identified throughout chronological phases of study.

		Understanding	Partnering	Enacting	Evaluating
Theme	Alex's Communication	✓			
	Enhancing Participation	✓		✓	✓
	Creating an Accessible AAC Classroom	✓		✓	✓
	Supporting Teacher Agency	✓	✓	✓	✓

## Alex's Communication

In the Understanding Phase, data was obtained from Alex's IEP and interviews with Jen (teacher) and Amanda (behavioural therapist) about Alex's communication goals and his use of AAC within and beyond the classroom.

**AAC goals.** As a student with significant learning support needs, Alex has an IEP, setting goals to be achieved at school, which is monitored and reviewed on a six-monthly basis. Within his most recent IEP, there were several goals focused on communication, including increasing conversational turn-taking, expanding verb vocabulary, making comments about books and pictures, and using more fluent sentences when making requests. These goals were generated by a speech-language therapist who works with Alex, and the learning support teacher based at the school. The goals were constructed from their understanding of Alex's AAC competence at school, following evaluations of previous rounds of IEPs. At the time of intervention, the IEP team evaluated that Alex was able to answer some basic questions (e.g., "how do you feel?"), could use 1-2 words for requesting independently, understood some semantic relationships, (e.g. that a chair goes with a table), and could answer questions about colours and shapes, all on his AAC system.

**AAC within the classroom.** In the Understanding Phase, Jen reported that Alex rarely initiated use of his AAC system in the classroom. In addition, she said that she did not personally use Alex's AAC system unless she was asking him a question or if he needed to ask to go somewhere, then she would prompt him to give an answer. She said that Alex's teacher aide used it on a more regular basis. Other children in the class did not use it or prompt Alex

to use it. Jen felt that it was a lot easier for teachers and staff to communicate with Alex, than it was for the children, as they knew how to prompt him to use his AAC system.

Jen further stated that it was difficult to incorporate AAC into the classroom as Alex was still learning to use his system, and sometimes he was quite reluctant. Jen was concerned that if other children in the classroom saw the teacher and teacher aide prompting him when he was reluctant, that it might look like they were forcing him to do something, which made them uneasy. She mentioned that there was further difficulty when asking questions of Alex, as the vocabulary available in his system was more limited and as such she had to structure her questions in ways that she knew he would be able to respond.

**AAC in therapy sessions.** Amanda, a behavioural therapist who works with Alex, was also interviewed. Amanda described her sessions with Alex. These included several activities focused on Alex's communication and use of the AAC system. At the point when Amanda was interviewed, she was targeting use of the five senses. In one activity, Alex listened to audio clips of animal sounds. He then independently navigated through the two-stage process from the system home page to correctly identify the animals. Another activity focused on taste. Alex closed his eyes and tasted different foods and then independently navigated through his system to identify what he was tasting. This involved selecting between two different pathways from the home page, both of which he had mastered and so new targets were being introduced. A third activity involved Alex putting his hand into a bag and identifying an unknown object in it from within a range of targets. Each of these targets involved a diverse symbol pathway, several of which he had now achieved. These activities had all been explicitly taught using prompt-fading.



Amanda reported that Alex sometimes initiated communication within therapy sessions using his AAC system. When doing so, he largely communicated single symbol messages including 'good', 'no', 'yes', 'hello' 'goodbye' and 'help'. He also requested a large variety of different foods. When Amanda modelled a phrase in the context of an activity, she reported that he often started mimicking her. When asked, she agreed that it would be a fair statement to say that Alex more often initiated use of his system within tasks or activities, rather than using it for social communication. She reported that she had not observed him initiate use of any multi-symbol messages, however, this was a skill that he often displayed on his core board last year, and so she attributed this to the transition to the new form of AAC, rather than to his linguistic ability.

There were clear differences between the quantity and quality of Alex's AAC use reported by Amanda in therapy sessions, as opposed to reported by Jen in the classroom. Amanda stated that she felt that there was a difference in understanding of Alex's linguistic competence between school, home and therapy contexts.

## **Thematic Analysis**

The procedure undertaken to derive these themes largely followed the general inductive approach described in Thomas (2006). Through engaging with this approach, the data was categorised into three themes, effectively relaying the outcomes of the intervention. These themes were enhancing participation, creating a communicatively accessible classroom, and supporting teacher agency.

**Enhancing participation.** Documenting Alex's participation in the classroom was critical to exploring the outcomes of the study given the social-pragmatic nature of the intervention.

This theme included comparative data of Alex's participation within class activities, as well as his system use. This theme also considered data that identified supports to Alex's participation.

Jen's comment that Alex rarely initiated use of his AAC system in the classroom, was supported by the initial classroom observations of the 'What's On Top?' activity in the Understanding Phase. During this activity, Jen usually asked Alex "*how are you feeling today Alex?*" to which he used his system to respond, *feel happy*, including on occasions when he outwardly did not appear so. On one occasion, he was asked a different question, "*who dropped you off at school today?*" to which he still responded, *feel happy*, became agitated, and repeated *feel happy* when the question was asked again. On this instance, Alex's Teacher Aide, Sophie, who always sat behind him during this activity took the system to prompt him, but could not find the appropriate symbol, and so they moved on. During one observation, Alex responded to Jen's, "*how are you?*" with *how are you?*. During a further observation, Alex was asked "*do you have anything you'd like to share?*" to which he replied *no*. Alex mostly appeared content to be part of the sharing circle, however did not face towards, or show outward signs of paying attention to the person who was sharing. At the end of the sharing time, the children were given the opportunity to ask questions about others' news. Alex did not ask, or get asked questions.

In the Enacting Phase, several supports were considered to promote Alex's participation in news-sharing. One support was the use of photos. Photos of Alex engaged in activities were used to try and increase his interest, focus his news-sharing, as well as give his peers something to ask him about, as shown in this interaction:

Jen: "*what are you doing here?*" (shows picture)

Alex: *I am milk*

Jen: *"I am carrying milk?"*

Alex: *I am carrying milk* (Jen points to 'carrying' on system)

Peer: *"who do you do milk with?"*

Alex: (points to Liam and Josh)

The strength of this additional support is perhaps shown best when compared to the interaction the day before, when no visual support was available:

Peer 1: *I am so cool*

Alex: *good*

Peer 1: (looks to adult for guidance, moves away from Alex)

Peer 2: *I'm going to buy a kitten*

Alex: (shakes hand for peers to go away)

The lack of functional communication between Alex and his peers within this interaction also highlights the support the provision of a photo was to the peers in having something to refer to and talk about, especially in instances where Alex didn't respond to initial efforts. The provision of a photo also provided a way for Alex to choose what news he would like to share. When given his teacher aide's phone to scroll through, he was able to choose a high-interest photo, to which he showed particular engagement, as shown here:

Sophie: (gives Alex her phone) *"do you want to choose something to talk about?"*

Alex: (scrolls through pictures to find one of himself jumping on a trampoline)

Sophie: *"Cool, you're jumping on a trampoline, can you say that?"*

Alex: *I am jumping on trampoline* (Sophie supports by pointing out where 'on' is and verbally prompts each word on sentence, moves to sit on other side of group to begin activity).

(Other members of group share their news)

Sophie: *"Alex would you like to share your news?"*

Alex: *yes (deletes pre-set up news and rewrites independently) I trampoline jumping*

Sophie: *"that's great Alex"*

Alex: (unprompted) *I trampoline jumping I trampoline jumping I trampoline jumping*  
(excited, laughing).

On the final day of the enacting phase, Alex had been on a family trip to the mountain the day before, and for the first time, had brought a photo from home to share. This resulted in this interaction, showing increased referencing of the people involved, a greater number of symbols used, and a more grammatically complex sentence:

Jen: *"what did you do this weekend Alex? What's going on here?"* (shows picture)

Alex: *I went to snow*

Jen: *"who was that with?"*

Alex: *with dad brother Alex with mom*

Alex also showed increased listening and engagement to his peers' news towards the end of the Enacting phase, and began to independently respond to them, as shown in this interaction:

Peer: *On the weekend I went to McDonalds*

Alex: *French fries chicken nuggets*

Peer: *"Do you like McDonalds?"*

Alex: *French fries chicken nuggets*

This spontaneous response to his peer's news was met positively by peers and Sophie, both of whom praised him for listening and engaging. This was shown to positively affect Alex, who was smiling and laughing. The impact of this praise was further shown the next day

when, in addition to sharing his news, he repeated his phrase from yesterday in an apparent attempt to recreate the positive response:

Sophie: *"are you ready to share?"*

Alex: *yes yes (plays on phone)*

Sophie: *"share your news please"*

Alex: *chicken nuggets chicken nuggets jumping trampoline jumping trampoline*

Sophie: *"does anyone have any questions for Alex?"*

Alex: *French fries soup*

Peer: *"do you like soup?"*

Alex: *yes*

Peer: *I'm going to subway*

Alex: *French fries chicken nuggets soup*

Alex's positive engagement with the intervention was further supported by observational data during the Enacting Phase where he showed initiative in giving his system to his peers so that they could use it. He further came to show the researcher before each session that he had retrieved his system and was ready to go.

Jen's comments in the Evaluation Phase support this observation of increased attention and engagement with the class, noting a general increase in his engagement in class activities.

*"I reckon he was kind of disengaged, like not with the class but kind of it was just Sophie who could really talk to him. Like, I could talk to him, but he wouldn't necessarily respond and I didn't know how to prompt him to respond, so I think he's more involved, because now any of the kids can go and ask him to do something...we play the compliments game, and before he would refuse*

*to do it, but he's more willing to do other things with the class, so like he will get up and he'll pull them back in, like little things like that, that I've noticed he's doing more often, which is nice."*

She further noted that even in instances where Alex doesn't want to participate in activities, he is now more likely to use his system to communicate this, showing awareness of what was being asked of him, and responding appropriately: *"Like even this week ..., I think he shared once, and the other times he didn't want to, but instead of just sitting there, he'd go "no", so he's still thinking about it."*

**Creating a communicably accessible classroom.** This theme encapsulated data that described the level of engagement the peers and Jen had with the intervention. This included bringing AAC into everyday use in the classroom, and how their perceptions and understanding of AAC developed over time.

In the Understanding Phase, Jen reported that Alex did not have a lot of engagement with his peers in the classroom, other than two students who were assigned as his 'helpers' to go and collect the school milk with him. This report was supported by the observations in the Understanding Phase where no direct interactions were observed between Alex and his class peers.

In the Enacting Phase, most of the students who acted as communication partners would not make eye contact with Alex unless prompted, and if Alex did not respond after they asked him a question, then they would turn to an adult for guidance or move away from him. Peers had to be continuously prompted over the course of the intervention to make eye contact, show Alex the system, wait, and model a response if needed. There was one student in the

class who was less hesitant and would persist in engaging in conversation with Alex. It was observed that Alex would more readily engage with this student and produced a higher volume of communication without prompting, as shown in this interaction, where he talked to two different peers on the same day:

Interaction 1:

Peer 1: *I got a haircut*

Alex: (no response, playing with shelf)

Peer 1: *"do you have any news?"* (researcher prompted to ask)

Alex: (no response)

Peer 1: *today it is rugby* (required further prompting from researcher to continue conversation, did not make eye contact with Alex.)

Alex: (runs away)

Interaction 2:

Peer 2: *Today I am feeling happy*

Alex: (laughing)

Peer 2: *how are you Alex? "Are you happy?"*

Alex: *no*

Peer 2: *do you like maths?*

Alex: *yes no*

Peer 2: *"is that a maybe?"*

Alex: (laughing)

Peer 2: *you are happy*

Alex: (laughing)

The peers found it difficult to operate some elements of the Speak4Yourself system during the intervention. This was most notably observed when they were trying to find unfamiliar

words. They would attempt to use the search function but would not know the correct spelling of the word. Students were also reluctant to abbreviate or shorten their news to save time, meaning that it would often take up to three minutes before the student had produced a piece of news to share.

In three instances during the Enacting Phase, students were observed asking Alex where certain symbols on the system were and for help finding them. This role of Alex as the ‘helper’ in the peer interaction was supported by Jen in her interview in the Evaluation Phase when she said that the intervention had allowed Alex to be *“the expert, so that’s pretty cool”*.

The peers, and Alex’s engagement in the intervention was a particular point of reflection in considering the effectiveness of this intervention, and Jen provided positive feedback on this in her interview in the Evaluation Phase:

*“The kids, they just love it, they love showing people. Like we had parent-teacher interviews and they showed all their parents how to use it... and we’ve talked to them, do you like being able to share with Alex? “yes”, and then asking Alex if he likes it that you can use it too and then at first, he was like “no”, but then he kept going “yes yes yes yes” so he does like it, and he gets so excited when the other kids talk to him”.*

What was of particular note, and was less anticipated, were the outcomes for the peers in the class unrelated to Alex, particularly around literacy. In her interview, Jen said:

*“and actually, it’s helping with their literacy skills, because its oral language, its reading, and its writing, it’s the three components so it’s really good. And even my low readers who are kind of reading like Level 7, Level 8,*



*like Kyle's reading low, like he could do it, he could write a simple sentence, and they can play, they can work out -does it make sense or not? And they just love it, they really do...and yes, they play around by pressing the buttons and that, but actually that's them thinking".*

In the Evaluating Phase, Jen reported positive changes in the perception of AAC in the classroom:

*"It's fun, like that's the only way I can describe it, like it's not hard, it's not like an extra thing you have to do, it's easier than teaching any other language, and as I say, the kids enjoy it. Like you could look around, and every single person would be here silently doing it, sharing and listening".*

Alongside the positive understanding of the power and potential of AAC, Jen further reported an increased awareness around the reality of being reliant on AAC; that how Alex communicates isn't so easy: *"there's been quite a few times where I've had to go, 'Alex, can you help me, where's this word?' and he'll show me".* Jen also reported an increased understanding that it is not an instant path to communication, *"it could be hard, because some days you'd sit there and be like 'oh that's so cool' and other days it's like 'come on, we know you can do this'.*

For Jen, further indicators of the peers' understanding of AAC came through feedback discussions about what they felt they had learnt over the course of the intervention:

*"when I asked, 'Why is it important to learn AAC?' they were like 'you can communicate with people who can't talk, you can include others and help*

*others share' and somebody said, 'you can learn how to read and write', which I thought was really cool".*

**Supporting teacher agency.** This theme captured data relating to changes in Jen's confidence towards using and teaching AAC. It also included developments in the dynamic of the collaborative relationship, and Jen's agency in incorporating AAC in the classroom.

In the Understanding Phase, when asked how the AAC system was introduced to her, Jen responded that *"it wasn't, really"*. She talked about having had a previous student in her class who had used a different AAC system and that she had learned about the system from watching how teacher aides interacted with the student. She stated that she has not received any personal professional development or training in AAC.

In response to a question regarding her confidence using the system, she responded: *"not very. I can work my way around, and sometimes you have to press buttons four times to find words and that can be tricky"*. She said that she did not know how to add or change the vocabulary on the system.

In the Partnership Phase, Jen's lack of previous support around AAC meant that the researcher initially contributed more of the intervention plan than originally intended and took on more of a teaching role in the early stages of the Enacting Phase. However, Jen increasingly gave suggestions and ideas for the intervention and implemented several of her own strategies outside of the intervention time slot to help develop the class' operational competence, such as showing pictures of animals and items on the classroom TV, for the class to label or describe using their systems.

At the mid-point of the Enacting phase, Jen took further initiative and gave feedback on the structure of the news-sharing activity, particularly regarding the socio-cultural factors of the previous 'What's on Top' activity. In the previous structure of the activity, Jen had valued being able to gauge her student's attitudes and be informed of any relevant events at home, something she felt was being lost in the pair structure. In response to this feedback, a decision was made collaboratively to change the structure of the news-sharing to small-group sessions, that she or Sophie could be a part of, to better hear the students' news.

In the interview in the Evaluation Phase, Jen showed continued motivation to engage with AAC beyond the intervention, reporting *"I think it's just continuing it. we've got a good base now, so now building on it"*. She gave several ideas of how she could incorporate AAC more in the news-sharing What's on Top activity, her working individually with Alex, and other class activities.

Jen also demonstrated how her understanding of Alex's communication ability had increased:

*"And I'll go up to him and I'll ask him 'what did you do last night?' and he needs the prompting like 'did you play with Alex, did you read a book?' and then he'll be able to tell you if you give him a number of choices, so I try to do that before school."*

She further noted the increased confidence that participating in this intervention has given her:

*"I didn't know how to use it at the beginning, and we use it all the time now.... It just gives you more of a confidence to use it. Like I could pick up the device and quite confidently communicate with anyone."*

Reflecting together on the intervention process, Jen gave several insights into the efficacy of the intervention and how it related to her classroom. She felt one of the main strengths was the focus on improving communication more generally, rather than directly focusing on Alex. This observation was supported in the feedback Jen took from the class, where she reported that the students talked about how AAC can be used to communicate with others, and how everyone can use it. She also felt that the whole-class, and group nature of the intervention was a strength *“and because of the way we did it in groups, they didn’t think “oh I can only just use this with Alex, I can communicate with anyone””*. Jen mentioned she felt it had been a particularly helpful teaching tool to link the concept of AAC as a language, to sign language, which the class has recently studied:

*“I think it was good to talk about different ways to communicate, like you know how you talked about sign language, well it’s the same it’s just a different way to talk and the kids really picked up on that”.*

She also noted that several students stressed the importance of looking at the person who is speaking and making eye contact in return when it is your turn to speak, which had been iterated often to them during the intervention.

## CHAPTER FIVE:

### Discussion

The aim of this study was to describe the outcomes of working collaboratively with a classroom teacher to plan and implement a whole-class intervention, which involved training classroom peers to act as communication partners for a child with ASD who used AAC.

Overall the results indicated that there were several outcomes to this study, affecting Alex, the student using AAC; Jen, the participant teacher; and the peers in the classroom. The outcomes were presented according to three key themes. These were: enhancing participation, creating a communicatively accessible classroom, and supporting teacher agency. In this chapter, these themes will be discussed with reference to the literature and how they relate to the research question. Future considerations relating to this study will also be discussed. Finally, specific implications for teacher and professionals working with children who use AAC will be presented, as well as a concluding statement for the study.

#### Enhancing Participation

Participation in school activities is shown to have a cascading effect, increasing self-confidence, and adding to future success in academics and social relationships (Therrien et al., 2016). However, for children with additional needs, participation, even under inclusive models of education, can be difficult to facilitate, and requires specific effort to offer alternative methods of input and expression, as well as strategies that promote engagement (Soto, 2009). The following discussion highlights the ways in which this study was able to enhance participation.

**Social communication.** This study focused on developing Alex's social communication skills.

The decision to target social communication reflected a desire to address the core communication difficulties associated with ASD (Logan et al., 2016), and also concerns raised in the literature regarding the dominant focus on behavioural AAC interventions for this group of children (Light & McNaughton, 2014). Most existing AAC intervention research for children with ASD has used behavioural intervention approaches to teach a narrow range of pragmatic functions, namely requesting and rejecting. Furthermore, these studies have largely been conducted in structured intervention settings, which are found to have lower potential for generalisability (Logan et al., 2016). In focusing on social communication, this study aimed to increase opportunities for Alex to engage in authentic interactions and through this, develop his social communication skills and increase his participation in the classroom.

At the beginning of the intervention, Alex was not observed to engage in any acts of social communication in the classroom, which Jen noted was typical. Further, although Amanda, Alex's behavioural therapist, reported that Alex had achieved multiple communication targets during their one-to-one therapy sessions (e.g., requesting, identifying and describing events, people, and objects), none of these skills were evident in the classroom, suggesting difficulty with generalisability. Alex demonstrated an increase in social communication over the course of the intervention. As it progressed, Alex was able to listen to the news sharing of his peers with less support and prompting, and was able to generate some spontaneous responses that were contextually appropriate. For example, when one of his peers talked about their trip to McDonalds, Alex commented "*French fries, chicken nuggets*". Promoting social interaction in the classroom is strongly linked to generating a sense of community, one of the

factors shown in the UDL framework to enhance engagement (Soto, 2009). This increased level of social communication, and participation is further suggestive of an increased sense of belongingness in the classroom.

**Belongingness.** Belongingness is defined as the need to establish relationships with others in a shared setting, and is developed through frequent, pleasant interactions in a supportive environment (Turner et al., 2014). An increased sense of belongingness for Alex in the classroom is indicated by Jen's observations of his increased participation in class activities beyond the news sharing intervention.

In school, perceptions of belonging are strongly linked to students' values for academic learning, as well as their beliefs that they can be successful, and willingness to simply give things a go (Cappella, Kim, Neal, & Jackson, 2013; Martin & Dowson, 2009). Research suggests that teachers can promote belongingness in the classroom by modelling attitudes of mutual respect between themselves and their students, and coaching students to interact and work together productively (Ledford et al., 2017; Turner, et al., 2014).

**Visual supports.** The provision of photos as visual supports for news sharing appeared to be effective at increasing Alex's participation and engagement, as well as peer confidence. This was despite there being some challenges with the availability and variety of photos available during the intervention. On the final day, Alex's parents sent a photo of a family trip to the mountain that had taken place the day before. As mentioned in the results, Alex exhibited a marked increase in his vocabulary, referencing, and fluency on this day.

The success of providing visual supports aligns with research that children with ASD often have relative strengths in visual over auditory processing and therefore are likely to respond

well to interventions that support these visual strengths (Logan et al., 2016). Making use of learner's strengths, through presenting content in a way that is most accessible to them, ties in with the Representation component in the UDL framework (Soto, 2009). Providing this visual support took little particular effort and made no disruption to the other students in the class, however, it supported Alex to participate in a whole-class activity, at a higher level than he might otherwise have been able to do so, as promoted under UDL.

## **Creating a Communicably Accessible Environment**

There has long been recognition of the importance of implementing AAC interventions in naturalistic contexts with typical communication partners, to increase social validity and generalisability (Prizant et al., 2000). Indeed Logan et al. (2016) argued that working to make everyday environments more accessible for AAC may be critical to addressing the core social-communication difficulties of children with ASD, enabling them to engage in the spontaneous and flexible communication required to fulfil their everyday communication needs. This is further supported by the components of UDL, which promotes a classroom design that relieves potential barrier to learning, such as not having access to AAC (Soto, 2009). The following section highlights how this study promoted an accessible classroom, and the benefits that occurred as a result.

**Promoting multi-modal expression.** In working to establish an environment where AAC was accepted and valued, the iPads already belonging to the class were loaded with the Speak4Yourself system, and the intervention was incorporated into an established classroom activity. Furthermore, the peers were encouraged to use AAC in the intervention as a mode of expression to communicate with one another, not just with Alex. The intervention data



suggested that providing this further option for expression was successful, with students asking to use it outside of the intervention time-slot, and wanting to show their parents at parent-teacher conferences.

Literature supports the development of this attitude, showing that when a student with complex communication needs is surrounded by others using AAC, it can lessen feelings or appearance of difference between them and their peers. This ‘immersive’ environment is comparable to that of a foreign language situation for non-native speakers, in which the experience of hearing the language around them is key for developing their own expressive skills and use (Wilkinson & Hennig, 2009).

By establishing AAC as an equal, but alternate, form of expression –something that can be used to communicate with anyone— the intervention sought to avoid connotations of ‘helping’ Alex, and making AAC something that the peers felt they had to do. The intervention data indicated that this was successful, in that the students described AAC as something that could be used to communicate with anyone, and that it was fun, rather than viewing it as a specialised tool for helping Alex. The peers and Jen also acknowledged Alex as an AAC expert, and asked him for help to find symbols, when needed. This data, when considering transactional theory, suggests that the peers, as communication partners avoided feeling the fatigue of always being in a ‘helper’ position that would in turn hinder authentic friendship development and peer interaction (Therrien et al., 2016). Rather, the converse was encouraged, with Alex increasingly interacting with peers, and doing so in a maintainable way.

**Peer competency.** In the intervention, the peers were encouraged to share their news using AAC. The purpose of this was to provide aided language input for Alex, as well as to increase

the peers' awareness of AAC and what it entailed. In doing so, the peers quickly came to realise that even when they had a high understanding of spoken and written language, using AAC to communicate wasn't as easy as they thought it would be. This was most notably observed when they were trying to find unfamiliar words. They would attempt to use the search function but would not know the correct spelling of the word and so could not find it. Furthermore, in the teaching sessions, the students were taught about working to be efficient when modelling AAC; it was explained that they did not have to model all of the words in their sentences, just the key words. However, students were reluctant to do this, unless explicitly prompted, preferring to create full sentences with AAC. This meant that it would often take up to three minutes before the student had produced a piece of news to share. As a result, Alex sometimes disengaged and lost interest in the task. This is not surprising given the attention difficulties commonly associated with ASD (Cafiero, 2005), Further, this delay meant that often only one conversational turn occurred before it was time to change conversation partners, decreasing Alex's ability to develop conversational turn-taking skills, an important aspect of social communication (Soto, Hartmann, & Wilkins, 2006).

**Preferred communication partner.** This intervention was chosen to be whole-class focussed with rotating communication partners in response to research indicating that relying on one communication 'helper' was fatiguing for the peer, created a transactional inequality that prevented the development of authentic friendships, and in case of absences, left the student without a communication partner (Carter et al., 2014; Trembath et al., 2009). Interestingly, despite the whole class focus, Alex appeared to show preference for one communication partner, and demonstrated higher levels of communication when interacting with this peer. In turn, this peer was a persistent communication partner, who continued to

model, even when not met with instant response, and who would partner with Alex without prompting by an adult. Some of the other peers when acting as communication partners would show little engagement with Alex and there would be little to no functional communication produced during this time.

**Benefits of inclusion for children without disabilities.** An unanticipated outcome of this study was the positive response and level of engagement demonstrated by some of the peers in the classroom in response to the intervention. In the Evaluating phase, Jen noted how one of the students who did not typically engage with literacy based activities was happy to join in with the AAC intervention and would construct complete sentences. While there does not appear to be any literature currently that directly addresses the impact of peer support AAC interventions, on peers' literacy engagement, there is a wide evidence base supporting the use of AAC in developing literacy engagement for children with communication difficulties (Light & McNaughton, 2012), as well as further research indicating the strength of technology to promote engagement in academic activities (Swan, Hooft, Kratcoski, & Unger, 2005). While this study was structured so as to avoid connotations of helping, the act of modelling and showing others what they could say on the AAC system may have further created a low-pressure situation for the peer, with increased potential for self-efficacy (Turner et al., 2014).

### **Supporting Teacher Agency**

In working to support children who use AAC, general education teachers are faced with a complex task. They must be the principal facilitators of learning for the children who use AAC in their classrooms, as well as for the rest of the children in the class who also have a wide range of needs and abilities. Since communication is fundamental to the educational process,

it is essential that all teachers are able to communicate effectively and efficiently with students with complex communication needs (Kent-Walsh & Light, 2003; Ministry of Education, 2009). However, many teachers feel as though they have not been provided with the time, training, or support to enable this to happen (Kent-Walsh & Light, 2003). The following section discusses the supports given to Jen over the course of the study, and shows how operating within a collaborative partnership supported her agency and motivation.

**Engaging as experts.** Through engaging in a collaborative planning partnership, Jen received support around implementing AAC in the classroom. While the researcher contributed knowledge about the research literature and the use of AAC, Jen contributed knowledge of her students and their individual needs, as well as understanding of the strengths of the intervention and the gaps it could fill. Although the intervention was specifically focussed on news-sharing, Jen was given autonomy to assess the needs of her classroom and use her increasing knowledge and understanding of AAC to make her classroom increasingly accessible. As outlined in the results, this was something she particularly engaged with, showing pictures up on the classroom TV for the students to identify and describe on the AAC systems, and allowing students to use the systems at any time during the day. The flexibility to engage with AAC in the way that best suited the unique context of the classroom, and to judge the success of the intervention based on student outcomes rather than on the fidelity of strategy implementation were key aspects of this study. The importance of this is supported by research indicating that flexible, tailored supports are more likely to result in generalised and long-term use of strategies (Timperley et al., 2008). By both the researcher and Jen coming into the study as ‘experts’, there was an attitude of respect, and trust to

maximise outcomes when opportunity presented, which strengthened the authenticity of the study.

**Equipping teachers for the inclusive classroom.** Previous research has identified several barriers to successful inclusion of AAC in the classroom. In Kent-Walsh and Light (2003), teachers described how their lack of training relating to special education and AAC limited their ability to meet the needs of target children. The participants were also concerned that they were not actively involved in the process of developing IEP goals for children included in their classes. Some teachers described themselves as being completely ‘out of the loop’. These teachers were also not involved in developing strategies for how goals should be met in the general education classroom. While the support of teacher aides and support staff can be valuable (Ledford et al., 2017), there remains an obligation for a classroom teacher in an inclusive environment to meet the needs of all of their students (Kent-Walsh & Light, 2003) and this is something that can only be done by providing these teachers with professional support and development.

In this study, although Jen had previously had a student in her class who used AAC, this experience was not enough to for her to develop sufficient knowledge and skills to best support the communication needs of Alex. However, by providing information about AAC and involving Jen in the planning and enactment processes, her competence and confidence to support her students with AAC increased. She stated *“I didn’t know how to use it at the beginning, and we use it all the time now.... It just gives you more of a confidence to use it. Like I could pick up the device and quite confidently communicate with anyone.”*

This increased confidence is supported by literature showing that when teachers engage in an intervention context that is supportive of professional learning, relevant to classroom

practice, and the activities in it are meaningful, iterative cycles of reflection and seeking new knowledge are promoted, with strong impact on teaching practice and student outcomes (Timperley et al., 2008). This is further supported by Jen's intentions to continue working to include AAC in the classroom *"I think it's just continuing it. we've got a good base now, so now building on it"*, corroborating the social validity of the study.

**Ease of implementation.** What is further notable about the study was the ease of implementation. The study was integrated into an established classroom practice so as to provide an authentic social environment for Alex to communicate within, to facilitate skill generalisation, and to prevent the intervention from causing any disruption to peers' learning. However, in doing this, the study was further structured so as to work within a realistic affordability of time and effort feasible for a full-time teacher. Lack of time to spare on specialised and additional learning when facing the day-to-day demands of the classroom was a barrier to AAC inclusion noted in Kent-Walsh and Light (2003). However, in allowing the study to be adapted around known teaching styles and established activities, this barrier was alleviated. This is reflected in Jen's comments about the ease of implementation *"It's fun, like that's the only way I can describe it, like it's not hard, it's not like an extra thing you have to do, it's easier than teaching any other language"*. This ease of implementation highlights that while specific and focussed effort is needed to increase AAC skills and knowledge, it does not need to be time-consuming or disruptive to produce positive outcomes.

## **Future Considerations**

Although particular effort was taken to ensure a robust methodological process, and the outcomes of the intervention were positive, this study must be considered in the context of

its limitations. However, in reflecting on the limitations of the study, a number of future considerations can be identified. These are discussed below.

**Visual supports.** The provision of photos as visual supports was shown to be effective at increasing Alex's participation and engagement, as well as peer confidence. However, both the availability and variability of photos were restricted. In continuation or replication of this study, it would be valuable to encourage increased access to, and variability, of photos.

**Role of technology.** The class iPads were used in this intervention as they were already part of the class environment and it meant that the peers could have access to the same AAC system as Alex. The intervention data shows that the peers enjoyed using the iPads and would ask to use them outside of the intervention time. This aligns with research suggesting that the use of tablet devices brings a 'cool factor' to AAC (Kagohara et al., 2013). It is interesting to consider whether a low-tech AAC system such as a core board or even a dedicated high-tech AAC system would have had the same level of appeal. Research shows that tablet AAC systems are often preferred by students who use AAC over low-tech or specialized systems (Couper et al., 2014), however these systems are not always suitable for students and their families (Wegner, 2012). Thus in order to further consider the generalisability of this intervention, a replication using a low-tech or specialised system would be useful to demonstrate any influence of the iPad's on peer engagement or social interactions. This research, in considering the social, as well as the literacy requirements of AAC, could then add to the evidence base useful to parents and clinicians when determining what AAC system is the best fit for a child.

**Peer social competence.** The hesitance, and lack of social competence shown by the peers towards Alex was not anticipated at the outset of this study. The inclusive classroom setting is designed to increase social opportunities and engagement between children with additional support needs and their peers (Chung et al., 2012b), however this was not found to be the case in this study. This in turn affected peers' readiness to engage with Alex, and confidence in keeping to the modelling conversation structure, especially when adult support was not immediately present. In future development of this study, consideration should be given to adding in social skills support or training to increase social competence in the classroom before introducing communication instruction. Furthermore, as discussed earlier, Alex appeared to have a preferred communication partner, who showed greater perseverance and engagement when talking to Alex, in comparison to other peers. Weighing up the importance of avoiding 'helper fatigue' with a whole class focus, versus risking non-communicative interactions with unengaged peers, is therefore something that may need to be considered in future development of the study.

**Teacher aide.** Sophie's role as Alex's Teacher Aide in this intervention was significant in that, despite spending the most time with Alex, she was not chosen to be part of the collaborative team in this study. This was purposefully done in part to offer opportunity to increase Jen's agency and autonomy in teaching all the students in her class and offering chance for professional development in this area. It was also done in order to allow greater opportunity for peer interaction within the class as it has been shown that the presence of a constant teacher aide can serve as a barrier, with peers feeling intimidated by a 'gate-keeper', or passing on any messages to the Teacher Aide rather than interacting directly with the student (Giangreco, 2010). However, during the intervention, Sophie was noted to be a particular



support in providing access to photos of Alex. She also, however, showed a tendency to step in and verbally and physically prompt Alex to answer or share with his peers, rather than allow the peers to lead the conversation structure, part of which included waiting for a response and modelling if not given, rather than forcing an answer. In evaluating the role and presence of Sophie in the classroom over the course of the intervention, the initial factors that led to the focus on Jen rather than Sophie remain valid, however, the enacting phase could have been strengthened by providing some initial training and support to Sophie around modelling and effective prompting, the importance of peer-led interactions, and how to step back and to provide support whilst allowing for social and communicative development in the classroom.

**Efficacy of the partnership.** In the evaluating phase of the study, Jen provided several insights around the teaching strategies and supports that she felt had worked well in the intervention. She also reported that that the intervention had increased her confidence and competence. However, there was no data volunteered or sought around Jen's perspective on the effectiveness of the collaborative partnership. This was an important aspect of the intervention and accessing this information would have strengthened the research.

**Student voice.** In this study, the peers frequently volunteered feedback to the researcher and the teacher about how they were finding the intervention and what they had learned from it. However, consent was not obtained to report this data, which in retrospect would have strengthened the study. Conducting a feedback session with the class to directly obtain student voice data rather than relying on researcher observation and teacher perception could have further served to increase the triangulation of the evidence and provided insight

into how the students felt the intervention met the class needs, their personal level of engagement, and if there was anything they would have liked to do differently.

## **Implications for Practice**

Despite these limitations, there were several strengths identified in the procedures and results of this study that can be useful to teachers and professionals working with children who use AAC. In particular, the importance of including, supporting, and partnering with classroom teachers in the planning and implementation process is highlighted. This study also demonstrated the strength of taking a classroom-focussed, universal approach to communication intervention, rather than focusing the intervention on the child who uses AAC. In addition, the study illustrated the positive impact of utilizing visual aids and technology to support children using AAC to engage at a higher level than they may otherwise do so, without any disruption to other learners in the classroom. Finally this study demonstrated that by incorporating an intervention into an established classroom activity, and encouraging professional agency and autonomy to engage with AAC in a way that best suited the unique context of the classroom, many of the barriers of trying to include AAC in the inclusive classroom were alleviated.

## **Final Thoughts**

The results of this case study demonstrated that a collaborative, peer-support intervention emphasising social communication skills of a child with ASD who used AAC in an inclusive classroom, resulted in positive outcomes. Three themes were identified which captured the changes that occurred across the four phases of the study: enhancing participation; creating a communicably accessible environment; and supporting teacher agency. These themes

demonstrated the effect the intervention had on all of the participants: the child with ASD who used AAC, his teacher, and his peers. This case study was predominantly descriptive in nature, but future case study research could replicate this intervention, exploring the different components of the intervention in more depth, and endeavouring to explain how they might serve to influence one another in a dynamic process. Further research in this area is critical for supporting the social communication skills of children with ASD who use AAC in authentic contexts.

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## APPENDICES

### Appendix A: Introductory letter to principal

#### Enhancing Augmentative and Alternative Communication Use through Collaborative Planning and Peer Modelling

#### LETTER TO PRINCIPAL

Dear [REDACTED],

My name is Amy Young, and I am a postgraduate student studying Educational Psychology in the Institute of Education at Massey University, under the supervision of Dr. Sally Clendon and Dr. Elizabeth Doell. I am writing to inform you about a study I am conducting for my Masters Thesis project entitled “Enhancing Augmentative and Alternative Communication Use through Collaborative Planning and Peer Modelling”, and to request your assistance in recruiting a teacher from your school to participate. I am specifically recruiting a teacher who has a member of their class currently using a speech generating device (SGD) as their primary mode of communication.

The purpose of my study is to (a) assess the effectiveness of an intervention consisting of collaborative planning and peer support arrangements to increase peer interaction and augmentative and alternative communication (AAC) use in a classroom and (b) consider the feasibility and effectiveness of an AAC intervention from the perspective of a classroom teacher. This research is aligned with the Ministry of Education guidelines, which advocate for contextualized inclusive interventions to support school aged children with speech, language, and communication needs.

The first part of the study will involve an interview with the participating teacher regarding the use of AAC in his/her classroom, and the current routine for news-sharing time. I will then conduct six initial observations in the classroom during news-sharing time. This will include observing the current routines and supports provided by the teacher and/or the teacher aide(s), as well as video recording, transcribing, and analysing interactions between the child who uses AAC and the teacher, teacher aide(s), and/or peers.

After these initial observations, I will meet with the teacher to engage in a collaborative planning conversation to share ideas and generate an intervention plan for increasing participation for the child who uses AAC. Part of this intervention plan will involve training

the peers in the classroom to optimise their communication skills, and their understanding and use of AAC.

I will then ask the teacher to incorporate this intervention into their teaching for five weeks. During this time, I will video record, transcribe, and analyse the interactions between the child who uses AAC and his/her peers during three news-sharing sessions per week. At the end of the five weeks, I will meet with the teacher again to interview him/her about the effectiveness and feasibility of the intervention

Please note that if the teacher does not currently have a news-sharing routine, then an alternative suitable classroom routine will be selected during the initial interview.

### **Time Commitment**

The two interviews will take approximately 30 minutes and the collaborative planning conversation will take 30-60 minutes. These will take place during the school lunch break or after school at a time convenient to the teacher.

### **Benefits and Risks to Participation**

By participating in this study, there are three potential benefits for the teacher and the children in his/her classroom:

- The teacher will participate in a professional learning opportunity that may support the integration of AAC in the classroom programme.
- The child with AAC will receive focused support and structure for inclusion in news-sharing time.
- The peers will improve their communication skills and their ability to interact with the child who uses AAC.

I do not anticipate there being any risks to participation.

### **Video Recording**

I will get permission from the children's parents for them to be video recorded. I will be sensitive to any behaviour that indicates a child is uncomfortable about the video recording and I will discontinue immediately if any child becomes upset or talks about sensitive information. I will also ask the teacher to check that all of the children are willing to be recorded prior to each of the news-sharing sessions. If the teacher becomes concerned about the video recording during these sessions, I will stop immediately.

Any non-consenting children will still engage in news-sharing time as part of the regular classroom programme, but they will not be assigned to share news with the child who uses AAC.

## Data Management

Information relating to the study will be stored securely in a locked office at Massey University, or on password protected computers. It will only be accessed by the Student Researcher, her supervisors, and a professional transcriber who will transcribe the teacher interviews. The professional transcriber will be asked to sign a confidentiality agreement. The information will be kept for 5 years following collection of the data. When disposed of, the University confidential waste service will be used for any printed materials.

When the study is finished, the results will be presented in my Masters thesis and may be submitted to a journal or presented at a conference, however, the information will not include the names of the school, the teachers or children, or any identifying features. A summary of the findings will be sent to you.

## Cultural considerations

It is a pertinent aspect of the process of ethics approval that I seek advice around the Māori cultural considerations of my project. This has been achieved through consultation with Dr. Bevan Erueti. However, I would also like to acknowledge the Memorandum of Understanding the school has with [REDACTED], and would be happy to seek further cultural advice with a representative of that iwi if desired.

Thank you for considering this request. I would be most willing to meet with you to provide further information and explanation about the study should this be required.

Yours sincerely,

Amy Young

027 775 2979

[Amy.Young.7@uni.massey.ac.nz](mailto:Amy.Young.7@uni.massey.ac.nz)

## Appendix B: Principal Consent form

### Enhancing Augmentative and Alternative Communication use through Collaborative Planning and Peer Modelling

#### PRINCIPAL APPROVAL

I have read the information in the Letter to Principals. 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 study being conducted at \_\_\_\_\_

*(Name of school)*

I agree to the participation of the following staff members: \_\_\_\_\_

*(Name of staff members)*

I agree/do not agree to the teachers participating during school time.

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Full Name – Printed: \_\_\_\_\_

## Appendix C: Teacher Information Sheet

### Enhancing Augmentative and Alternative Communication Use through Collaborative Planning and Peer Modelling

#### Teacher Information Sheet

This research study is being carried out by Amy Young, a masters student in Educational Psychology at Massey University under the supervision of Dr Sally Clendon and Dr Elizabeth Doell.

The purpose of the study is to (a) assess the effectiveness of an intervention consisting of collaborative planning and peer support arrangements to increase peer interaction and AAC use in a classroom and (b) consider the feasibility and effectiveness of an AAC intervention from the perspective of a classroom teacher. This research is aligned with the Ministry of Education guidelines which advocate for contextualized inclusive interventions to support school aged children with speech, language, and communication needs.

I have approached the principal of Central Normal School, Shona Oliver, and asked her permission to recruit participants from the school. This approval has been granted, therefore this Information Sheet and Consent Form are now being shared with you.

#### Project Procedures

The first part of the study will involve an interview with you regarding the use of AAC in your classroom, and your current routines for news-sharing time. I will then conduct six initial observations in the classroom during news-sharing time. This will include observing the current routines and supports provided by you and any teacher aides working in your classroom, as well as video recording, transcribing, and analysing interactions between the child who uses AAC, yourself, the teacher aide(s), and/or peers.

After these initial observations, I will meet with you to engage in a collaborative planning conversation to share ideas and generate an intervention plan for increasing participation for the child who uses AAC. Part of this intervention plan, will involve training the peers in the classroom to optimise their communication skills, and their understanding and use of AAC.

I will then ask you to incorporate this intervention into your daily class programme for five weeks. During this time, I will video record, transcribe, and analyse the interactions between the child who uses AAC and his/her peers during three news-sharing sessions per week. At the end of the five weeks, I will meet with you again to interview you about the effectiveness and feasibility of the intervention.

Please note that if you do not currently have a news-sharing routine in place in your classroom, we can discuss this at the initial interview, and select an alternative classroom routine that works for you.

### **Time Commitment**

The two interviews will take approximately 30 minutes and the collaborative planning conversation will take 30-60 minutes. These will take place during the school lunch break or after school at a time convenient to you.

### **Benefits and Risks to Participation**

By participating in this study, there are three potential benefits:

- You, as the teacher will participate in a professional learning opportunity that may support the integration of AAC in the classroom programme.
- The child with AAC will receive focused support and structure for inclusion in the classroom news-sharing time.
- The peers will improve their communication skills and their ability to interact with the child who uses AAC.

I do not anticipate there being any risks to participation.

### **Video Recording**

I will get permission from the children's parents for them to be video recorded. I will be sensitive to any behaviour that indicates a child is uncomfortable about the video recording and I will discontinue immediately if any child becomes upset or talks about sensitive information. I will also ask you to check that all of the children are willing to be recorded prior to each of the news-sharing sessions. If you become concerned about the video recording during these sessions, I will stop immediately.

Any non-consenting children will still engage in news-sharing time as part of the regular classroom programme, but they will not be assigned to share news with the child who uses AAC.

### **Interview Transcription**

The two interviews will be transcribed by a professional transcriber. This person will be asked to sign a confidentiality agreement. The transcripts from the interviews will be made available to you, and you will have the opportunity to edit them before they are finalised.

### **Data Management**



Information relating to the study will be stored securely in a locked office at Massey University, or on password protected computers. It will only be accessed by the Student Researcher, her supervisors, and the professional transcriber. The information will be kept for 5 years following collection of the data. When disposed of, the University confidential waste service will be used for any printed materials.

When the study is finished, the results will be presented in my Masters thesis and may be submitted to a journal or presented at a conference, however, the information will not include the names of the school, the teachers or children, or any identifying features. A summary of the research findings will be sent to you.

### **Your Rights**

In following ethical procedures for research, I reassure you that you are under no obligation to consent to participate in this study. If you decide to participate, you have the right to:

- withdraw from the study at any time before the end of the data collection period;
- review any video footage that captures you;
- ask for any video segment that features you to be erased from the data set;
- review and edit the interview transcripts;
- ask any questions about the study at any time during participation;

### **Contact Information**

Thank you for taking the time to consider this request. Should you have any questions about the study please contact me or my primary supervisor Sally Clendon.

Amy Young

0277752979

Amy.Young.7@uni.ac.nz

Sally Clendon

09 414 0800 Ext 43537

s.clendon@massey.ac.nz

### **Committee Approval Statement**

This project has been reviewed and approved by the Massey University Human Ethics Committee: Northern, Application NOR 17/19. If you have any concerns about the conduct of this research, please contact Dr Brian Finch, Acting Chair, Massey University Human Ethics Committee: Northern, , email [humanethicsnorth@massey.ac.nz](mailto:humanethicsnorth@massey.ac.nz).

## Appendix D: Teacher Consent

Enhancing Augmentative and Alternative Communication use through Collaborative Planning  
and Peer Modelling.

### PARTICIPANT CONSENT FORM - TEACHER

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

I agree/do not agree to our interviews being recorded and transcribed.

I agree/do not agree to the classroom lessons being video recorded.

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

Signature:

Date:

.....

.....

Full Name - printed

.....

## Appendix E: Teacher Aide Information sheet

### Enhancing Augmentative and Alternative Communication use through Collaborative Planning and Peer Modelling

#### Teacher Aide Information Sheet

This research study is being carried out by Amy Young, a masters student in Educational Psychology at Massey University under the supervision of Dr Sally Clendon and Dr Elizabeth Doell.

The purpose of the study is to (a) assess the effectiveness of an intervention consisting of collaborative planning and peer support arrangements to increase peer interaction and AAC use in a classroom and (b) consider the feasibility and effectiveness of an AAC intervention from the perspective of a classroom teacher. This research is aligned with the Ministry of Education guidelines which advocate for contextualized inclusive interventions to support school aged children with speech, language, and communication needs.

I have approached the principal of Central Normal School, Shona Oliver, and asked her permission to recruit participants from the school. This approval has been granted. The teacher in a classroom that you work in has agreed to participate, and now this Information Sheet and Consent Form are being shared with you.

#### Project Procedures

The first part of the study will involve an interview with the teacher regarding the use of AAC in the classroom, and the current routines for news-sharing time. I will then conduct six initial observations in the classroom during news-sharing time. This will include observing the current routines and supports provided by the teacher and yourself in the classroom, as well as video recording, transcribing, and analysing interactions between the child who uses AAC, the teacher, yourself, and/or peers.

After these initial observations, I will meet with the teacher to engage in a collaborative planning conversation to share ideas and generate an intervention plan for increasing participation for the child who uses AAC. Part of this intervention plan, will involve training the peers in the classroom to optimise their communication skills, and their understanding and use of AAC.

I will then ask the teacher to incorporate this intervention into the daily class programme for five weeks. During this time, I will video record, transcribe, and analyse the interactions between the child who uses AAC and his/her peers during three news-sharing sessions per week. At the end of the five weeks, I will meet with the teacher again to interview him/her about the effectiveness and feasibility of the intervention.

## Benefits and Risks to Participation

By participating in this study, there are three potential benefits:

- The teacher will participate in a professional learning opportunity that may support the integration of AAC in the classroom programme.
- The child with AAC will receive focused support and structure for inclusion in the classroom news-sharing time.
- The peers will improve their communication skills and their ability to interact with the child who uses AAC.

I do not anticipate there being any risks to participation.

## Data Management

Information relating to the study will be stored securely in a locked office at Massey University, or on password protected computers. It will only be accessed by the Student Researcher, her supervisors, and the professional transcriber who will transcribe the teacher interviews. The professional transcriber will be asked to sign a confidentiality agreement. The information will be kept for 5 years following collection of the data. When disposed of, the University confidential waste service will be used for any printed materials.

When the study is finished, the results will be presented in my Masters thesis and may be submitted to a journal or presented at a conference, however, the information will not include the names of the school, the staff, or the children, or any identifying features. A summary of the research findings will be sent to you.

## Your Rights

In following ethical procedures for research, I reassure you that you are under no obligation to consent to participate in this study. If you decide to participate, you have the right to:

- withdraw from the study at any time before the end of the data collection period;
- review any video footage that captures you;
- ask for any video segment that features you to be erased from the data set;
- ask any questions about the study at any time during participation;

## Contact Information

Thank you for taking the time to consider this request. Should you have any questions about the study please contact me or my primary supervisor Sally Clendon.

Amy Young

Sally Clendon

0277752979

09 414 0800 Ext 43537

[Amy.Young.7@uni.massey.ac.nz](mailto:Amy.Young.7@uni.massey.ac.nz)

[s.clendon@massey.ac.nz](mailto:s.clendon@massey.ac.nz)

#### Committee Approval Statement

This project has been reviewed and approved by the Massey University Human Ethics Committee: Northern, Application NOR 17/19. If you have any concerns about the conduct of this research, please contact Dr Brian Finch, Acting Chair, Massey University Human Ethics Committee: Northern, , email [humanethicsnorth@massey.ac.nz](mailto:humanethicsnorth@massey.ac.nz).

## Appendix F: Teacher Aide Consent

Enhancing Augmentative and Alternative Communication use through Collaborative Planning  
and Peer Modelling.

### PARTICIPANT CONSENT FORM – Teacher Aide

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 being video recorded.

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

Signature:

Date:

.....

.....

Full Name - printed

.....

## Appendix G: Parent Information sheet (Peers)

### Enhancing Augmentative and Alternative Communication Use through Collaborative Planning and Peer Modelling

#### INFORMATION SHEET – PARENTS

This research study is being carried out by Amy Young, a masters student in Educational Psychology at Massey University under the supervision of Dr Sally Clendon and Dr. Elizabeth Doell.

The focus of this study is a classmate in your child's classroom who is unable to use speech to communicate. This child communicates using augmentative and alternative communication (AAC). This involves choosing pictures, words, or letters on an iPad app; the app then speaks the message aloud. The purpose of the study is to promote classmate interaction and support during news-sharing time for the child who uses AAC.

I have approached the principal of Central Normal School, Shona Oliver, and asked her permission to recruit participants from the school. This approval has been granted and your child's teacher has agreed to participate, therefore this Information Sheet and Consent Form are now being shared with you.

#### Study Procedures

The study involves me partnering with your child's classroom teacher to share ideas and generate a plan for increasing participation during news sharing time. Part of this plan will involve training the children in the classroom to be effective communication partners, and increasing their understanding and use of AAC.

The study will also involve me observing in the classroom during news-sharing time. This will include observing the routines and supports provided by the teacher and/or the teacher aide(s), as well as video recording, transcribing, and analysing conversations between the child who uses AAC and the teacher, teacher aide(s), and/or classmates. There will be a total of 21 observations: 6 before and 15 during the intervention.

I am asking permission to video your child if they participate in a conversation with the child who uses AAC.

During the news sharing sessions, data will also be gathered. using the software on the AAC system, which records any symbol input to the system.

#### Benefits and Risks to Participation

By participating in this study, it is hoped that your child will have greater opportunity to engage in high quality conversations with his/her classmates, particularly the child who uses AAC. I do not anticipate there being any risks to participation.

### **Video Recording**

When video recording your child, I will be sensitive to any behaviour that indicates that s/he is uncomfortable about the video recording and I will discontinue immediately if your child becomes upset or communicates any sensitive information. I will also ask your child's teacher to check that your child is willing to be recorded prior to each of the videotaped sessions.

### **Data Management**

Information relating to the study will be stored securely in a locked office at Massey University, or on password protected computers. It will only be accessed by the Student Researcher, her supervisors, and a professional transcriber who will transcribe the teacher interviews. The professional transcriber will be asked to sign a confidentiality agreement. The information will be kept for 5 years following collection of the data. When disposed of, the University confidential waste service will be used for any printed materials.

When the study is finished, the results will be presented in my Masters thesis and may be submitted to a journal or presented at a conference, however, the information will not include the names of the school, the teachers or children, or any identifying features. A summary of the findings will be sent to your child's school and I will ask them to share this with you.

### **Your Rights**

In following ethical procedures for research, I reassure you that you are under no obligation to consent to your child's participation in this study. If you decide to participate, you have the right to:

- withdraw from the study at any time before the end of the data collection period;
- review any video footage that captures your child's image;
- ask for any video segment that features your child to be erased from the data set;
- ask any questions about the study at any time during participation;

### **Contact Information**

Thank you for taking the time to consider this request. Should you have any questions about the study please contact me or my primary supervisor Sally Clendon.



Amy Young

Sally Clendon

0277752979

09 414 0800 Ext 43537

[Amy.Young.7@uni.massey.ac.nz](mailto:Amy.Young.7@uni.massey.ac.nz)

[s.clendon@massey.ac.nz](mailto:s.clendon@massey.ac.nz)

#### Committee Approval Statement

This project has been reviewed and approved by the Massey University Human Ethics Committee: Northern, Application NOR 17/19. If you have any concerns about the conduct of this research, please contact Dr Brian Finch, Acting Chair, Massey University Human Ethics Committee: Northern, , email [humanethicsnorth@massey.ac.nz](mailto:humanethicsnorth@massey.ac.nz).

## Appendix H: Parent consent form (peers)

Enhancing Augmentative and Alternative Communication use through Collaborative Planning  
and Peer Modelling.

### PARTICIPANT CONSENT FORM - PARENT

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 my child being video recorded.

I agree to my child participating in this study under the conditions set out in the Information Sheet.

Signature:

Date:

.....

Full Name - printed

.....

## Appendix I: Parent Information sheet (parent of student using AAC)

### Enhancing Augmentative and Alternative Communication Use through Collaborative Planning and Peer Modelling

#### INFORMATION SHEET – PARENT OF CHILD WHO USES AAC

This research study is being carried out by Amy Young, a masters' student in Educational Psychology at Massey University under the supervision of Dr Sally Clendon and Dr Elizabeth Doell.

The purpose of the study is to promote interaction between classmates during news-sharing time for a child with complex communication needs who uses augmentative and alternative communication (AAC).

I have approached the principal of Central Normal School, Shona Oliver, and asked her permission to recruit participants from the school. This approval has been granted and your child's teacher has agreed to participate, therefore this Information Sheet and Consent Form are now being shared with you.

#### Study Procedures

The study involves me partnering with your child's classroom teacher to share ideas and generate a plan for increasing participation during news sharing time. Part of this plan will involve training the children in the classroom to be effective communication partners, and increasing their understanding and use of AAC.

The study will also involve me observing in the classroom during news-sharing time. This will include observing the routines and supports provided by the teacher and/or the teacher aide(s), as well as video recording, transcribing, and analysing conversations between your child and their teacher, teacher aide(s), and/or classmates. There will be a total of 21 observations: 6 before and 15 during the intervention.

I am asking permission to video your child during this news sharing time, to record any use of their AAC system, and to access your child's device during the news-sharing time to confirm this communication.

#### Video Recording

When video recording your child, I will be sensitive to any behaviour that indicates that s/he is uncomfortable about the video recording and I will discontinue immediately if your child becomes upset or communicates any sensitive information. I will also ask your child's teacher to check that your child is willing to be recorded prior to each of the videotaped sessions.

## **Benefits and Risks to Participation**

By participating in this study, it is hoped that your child will have greater opportunity to communicate with his/her classmates and engage in high quality interactions, and that this will lead to increased use of his/her AAC system. I do not anticipate there being any risks to participation.

## **Video Recording**

When video recording your child, I will be sensitive to any behaviour that indicates that s/he is uncomfortable about the video recording and I will discontinue immediately if your child becomes upset or communicates any sensitive information. I will also ask your child's teacher to check that your child is willing to be recorded prior to each of the videotaped sessions.

## **Data Management**

Information relating to the study will be stored securely in a locked office at Massey University, or on password protected computers. It will only be accessed by the Student Researcher, her supervisors, and a professional transcriber who will transcribe the teacher interviews. The professional transcriber will be asked to sign a confidentiality agreement. The information will be kept for 5 years following collection of the data. When disposed of, the University confidential waste service will be used for any printed materials.

When the study is finished, the results will be presented in my Masters thesis and may be submitted to a journal or presented at a conference, however, the information will not include the names of the school, the teachers or children, or any identifying features. A summary of the findings will be sent to your child's school and I will ask them to share this with you.

## **Your Rights**

In following ethical procedures for research, I reassure you that you are under no obligation to consent to your child's participation in this study. If you decide to participate, you have the right to:

- withdraw from the study at any time before the end of the data collection period;
- review any video footage that captures your child's image;
- ask for any video segment that features your child to be erased from the data set;
- review any data from the software in your child's AAC system;

- Ask for any segment of the data from the software in your child's AAC system to be erased from the data set;
- ask any questions about the study at any time during participation;

### Contact Information

Thank you for taking the time to consider this request. Should you have any questions about the study please contact me or my primary supervisor Sally Clendon.

Amy Young

Sally Clendon

0277752979

09 414 0800 Ext 43537

Amy.Young.7@uni.massey.ac.nz

s.clendon@massey.ac.nz

### Committee Approval Statement

This project has been reviewed and approved by the Massey University Human Ethics Committee: Northern, Application NOR 17/19. If you have any concerns about the conduct of this research, please contact Dr Brian Finch, Acting Chair, Massey University Human Ethics Committee: Northern, , email [humanethicsnorth@massey.ac.nz](mailto:humanethicsnorth@massey.ac.nz).

## Appendix J: Parent Consent form

Enhancing Augmentative and Alternative Communication use through Collaborative Planning  
and Peer Modelling.

### PARTICIPANT CONSENT FORM – PARENT (STUDENT USING AAC\_

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 my child being video recorded.

I agree to my child participating in this study under the conditions set out in the Information Sheet.

Signature:

Date:

.....

Full Name - printed

.....

## Appendix K: Supplementary Parent Consent form

**Note:** this supplementary consent was obtained to add two further data sources to the original study. These amendments to the study were approved as minor by the Massey University Ethics Committee on 20/06/2017.

# Enhancing Augmentative and Alternative Communication use through Collaborative Planning and Peer Modelling

## ADDITIONAL PARTICIPANT CONSENT FORM – PARENT OF CHILD USING AAC

### Information

You have given permission for your child to participate in the above research study. I would like to request the inclusion of two additional sources of information to gain a more comprehensive understanding of your child's communicative ability. Firstly, I would like permission to access your child's IEP document, and secondly, I would like your permission to interview the current ABA Therapist working with your child to obtain their perspective on your child's current communication skills and effective strategies for supporting his communication. If you have any questions relating to this or any other aspects of the study, please do not hesitate to contact me.

Regards,

Amy Young

[Amy.Young.7@uni.massey.ac.nz](mailto:Amy.Young.7@uni.massey.ac.nz)

### Consent

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 my child's IEP document being shared with the researcher

I agree/do not agree to an interview being conducted with my child's ABA Therapist

**Signature:**

.....

**Date:**

.....

**Full Name - printed**

.....

## Appendix L: Behavioural therapist information sheet

### Enhancing Augmentative and Alternative Communication use through Collaborative Planning and Peer Modelling

#### ABA Therapist

This research study is being carried out by Amy Young, a masters student in Educational Psychology at Massey University under the supervision of Dr Sally Clendon and Dr Elizabeth Doell.

The purpose of the study is to (a) assess the effectiveness of an intervention consisting of collaborative planning and peer support arrangements to increase peer interaction and AAC use in a classroom and (b) consider the feasibility and effectiveness of an AAC intervention from the perspective of a classroom teacher. This research is aligned with the Ministry of Education guidelines which advocate for contextualized inclusive interventions to support school aged children with speech, language, and communication needs.

#### Project Procedures

The first part of the study will involve an interview with the teacher regarding the use of AAC in the classroom, and the current routines for news-sharing time. I will then conduct six initial observations in the classroom during news-sharing time. This will include observing the current routines and supports provided by the teacher in the classroom, as well as video recording, transcribing, and analysing interactions between the child who uses AAC, the teacher, and/or peers.

After these initial observations, I will meet with the teacher to engage in a collaborative planning conversation to share ideas and generate an intervention plan for increasing participation for the child who uses AAC. Part of this intervention plan, will involve training the peers in the classroom to optimise their communication skills, and their understanding and use of AAC.

I will then ask the teacher to incorporate this intervention into the daily class programme for five weeks. During this time, I will video record, transcribe, and analyse the interactions between the child who uses AAC and his/her peers during three news-sharing sessions per week. At the end of the five weeks, I will meet with the teacher again to interview him/her about the effectiveness and feasibility of the intervention.

#### Your Role



I am asking permission to conduct an audio-recorded interview with you regarding your professional knowledge of the participant student and his use of AAC. The purpose of this interview is to obtain additional data to that gained in the initial classroom observations, so as to best evaluate the student's communicative ability and any current AAC-related strategies being utilised. This interview will take approximately 30 minutes.

### **Interview Transcription**

The interview may be transcribed by a professional transcriber. This person will be asked to sign a confidentiality agreement. The transcript from the interview will be made available to you, and you will have the opportunity to edit it before it is finalised.

### **Benefits and Risks to Participation**

There are three potential benefits to this study:

- The teacher will participate in a professional learning opportunity that may support the integration of AAC in the classroom programme.
- The child with AAC will receive focused support and structure for inclusion in the classroom news-sharing time.
- The peers will improve their communication skills and their ability to interact with the child who uses AAC.

I do not anticipate there being any risks to participation.

### **Data Management**

Information relating to the study will be stored securely in a locked office at Massey University, or on password protected computers. It will only be accessed by the Student Researcher, her supervisors, and the professional transcriber who will transcribe the teacher interviews. The professional transcriber will be asked to sign a confidentiality agreement. The information will be kept for 5 years following collection of the data. When disposed of, the University confidential waste service will be used for any printed materials.

When the study is finished, the results will be presented in my Masters thesis and may be submitted to a journal or presented at a conference, however, the information will not include the names of the school, the staff, or the children, or any identifying features. A summary of the research findings will be sent to you.

### **Your Rights**

In following ethical procedures for research, I reassure you that you are under no obligation to consent to participate in this study. If you decide to participate, you have the right to:

- withdraw from the study at any time before the end of the data collection period;
- review and edit the interview transcript;
- ask any questions about the study at any time during participation;

### Contact Information

Thank you for taking the time to consider this request. Should you have any questions about the study please contact me or my primary supervisor Sally Clendon.

Amy Young

Sally Clendon

0277752979

09 414 0800 Ext 43537

[Amy.Young.7@uni.massey.ac.nz](mailto:Amy.Young.7@uni.massey.ac.nz)

[s.clendon@massey.ac.nz](mailto:s.clendon@massey.ac.nz)

### Committee Approval Statement

This study has been reviewed and approved by the Massey University Human Ethics Committee: Northern, Application NOR 17/19. If you have any concerns about the conduct of this research, please contact Dr Brian Finch, Acting Chair, Massey University Human Ethics Committee: Northern, , email [humanethicsnorth@massey.ac.nz](mailto:humanethicsnorth@massey.ac.nz).

## Appendix M: Behavioural therapist consent form

Enhancing Augmentative and Alternative Communication use through Collaborative Planning  
and Peer Modelling.

### PARTICIPANT CONSENT FORM – ABA THERAPIST

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 our interview being recorded and transcribed.

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

Signature:

Date:

.....

Full Name - printed

.....

## Appendix N: Ethics Approval letter



Date: 12 April 2017

Dear Amy Young

Re: Ethics Notification - **NOR 17/19 - Enhancing Augmentative and Alternative Communication Use through Collaborative Planning and Peer Modelling**

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 Wednesday, 12 April, 2017.

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

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

Yours sincerely



Dr Brian Finch

Chair, Human Ethics Chairs' Committee and Director (Research Ethics)

## Appendix O: Interview Schedule (initial and follow-up interview)

### Interview Schedule

#### Initial Interview

- Tell me about [student's name] and his/her augmentative and alternative communication (AAC) system.
- How was the AAC system introduced to you?
- How confident do you feel in using the system?
- How do use it during the school day?
- How do the other children in the classroom use it during the school day?
- Are you able to add/change the vocabulary?
- How easy or challenging has it been to incorporate AAC in an inclusive classroom environment?
- Have you received any professional learning and development opportunities focused on AAC?
- Can you describe news-sharing time in your classroom?
- How is this time organised?
- What structures and/or supports do you use to support the children's oral language use during news-sharing time?

#### • Follow-up Interview

- How often were you able to implement the intervention?
- How effective do you think the intervention was for [student's name]?
- How easy or challenging was the intervention to implement?
- Have you noticed any changes in the participation and communication of [student's name] during and beyond the news-sharing time?

- Have you noticed any changes in the participation and communication of the other children in the classroom?
- Would you recommend the intervention to other teachers who have children who use AAC in their classrooms?
- Will you continue to incorporate the intervention into your teaching?
- What kind of supports would assist you to implement/sustain the intervention?

## Appendix P: Interview schedule (behavioural therapist)

### Interview Schedule: ABA Therapist

- Can you tell me about [student's name] and their augmentative and alternative communication (AAC) system?
- Have you received any professional learning and development opportunities focussed on AAC?
- Do you have any teaching structures in place in your current ABA programme focussed on AAC?
  - If so, can you describe them?
- Does [student's name] initiate use of his AAC device?
  - If so, how often?
  - Does he have particular situations in which he is more likely to initiate use?
- When using his AAC device, does he use more than one symbol at a time to create a sentence?
  - If so, what would be a usual length of utterance?
- How varied is his vocabulary on his AAC device?
  - Does he use certain phrases or symbols most frequently?

## Appendix Q: Collaborative Conversation Plan

### Collaborative Conversation Plan

#### Monday 3<sup>rd</sup> July: Observation Review

- Ask why they do a new-sharing activity in the classroom:
  - If because just do, or have picked up without explicit reasoning discuss both research showing oral language implications for long-term school success, import given in key competencies documents, and just how many of these objectives can be developed within a 10-min news sharing activity. If mostly aware, fill in any gaps. Explain in context of whole class not just the single student using AAC.
- **Review Observations:** gain a sense of what is deliberately strategized about activity, if anything is done 'just because' or if she is unaware of any aspects.
  - Show parts of observation videos
    - Are there any particular strategies that she thinks work; strategies that currently aren't working as well; are there any strategies she has tried previously that have or haven't worked- what were the reasons in stopping these strategies?
    - Discuss Alex's current range of language use (so far in observations seen "Yes", "feel happy", and "hello")- does she feel this is an accurate depiction of his AAC use?
    - Acknowledge Alex's reluctance seen in observations to divert from routine question. Intervention will need to be carefully structured so it doesn't feel we are forcing him to do something- acknowledge this being brought up in initial interview.
  - If not mentioned as deliberate strategies ask why it is done as a **whole class format**, and why **questions related to sharing are only allowed at the end**: if answer is time factor, ask if she has considered splitting into smaller groups, if way it has always been done talk about increased difficulty for kids to recall at end, minimises clarifying and questioning ability whereas immediate question develops conversational turn-taking ability: is she open to change in format?
  - Mention that in the initial interview, the weekend past or present was the **subject material**, however observations show a lot looser format with stories from anytime of the week, including some students bringing in an item to discuss- was this a deliberate relaxation/items encouraged at any point? Anything encouraging kids to share is great- would she be open to increasing different options for sharing? Follow on by asking why activity done only **twice**



**a week-** if kids don't have that many stories increasing topics may be good option.

- Finally ask if upon seeing the videos and from discussion is there anything she has noticed/ wants to apply specific change.
  - Talk about use of class iPad's: mention that have option to place modelling software on iPad's for other children to use. Ask how many are available, are children allowed to use them outside of the structured news-time, i.e. before school, or to respond to morning roll?
- Now have five days before coming back to make a formal plan- options for both of us to go come up with ideas, identify areas we would like to target; or me to go get a plan together, then at next meeting determine roles- Jen to think about what proportion of role she would like to take on/how comfortable she feels. Talk about really wanting this intervention to be something she wants to be a part of and feel invested in rather than me coming in for five weeks and disappearing, intervention practice and effect going with me. Mention am happy to take more substantial role at outset, but even so would really try to step back as soon as possible.

## Appendix R: Intervention Plan

### Week 1: 'Learning week'

#### 24<sup>th</sup> July: Small group (and Alex) with Amy

1. Discuss nature of communication: comes in different forms, different languages.
2. Talk about what we're trying to achieve: learning Alex's language, becoming AAC experts so whole class can communicate together.
3. Intro device, symbols: search functions, word organisation doesn't always make sense, can play back whole sentences, clear at end of turn. Show activity cards with words or pictures, practice finding them in the system. Then move to try some 2-3-word phrases.
4. Strategies to promote use (Amy to make poster or visual reminder):
  1. **Model** the AAC system to share your news.
  2. **Invite** Alex to share his news "your turn".
  3. **Wait** for Alex.
  4. **Respond** to Alex's communication (Make a comment, Ask a question).
  5. If Alex, doesn't respond, **Model** a response: "you could say ..." Give time to practice amongst selves. iPad available during day to practice on.

#### 25<sup>th</sup> July: Small group (Amy)

1. How are they finding it so far? Any challenges, what do they like about it
2. Revisit 5 strategies
3. Prepare them to be 'experts' when introducing to whole class on Thursday.

#### 27<sup>th</sup> July: Whole class (Amy, Jen, and Catherine?)

1. Discuss nature of communication: different languages- Alex's is AAC. Want to work to all become better communicators and become AAC experts (Jen).
2. Intro device, symbols, using Apple TV (Amy)
3. Practice on device in pairs with activity cards with words or pictures: practice finding them in the system. Then move to try some 2-3 word phrases.
4. Four strategies to promote use:

- a. **Model** the AAC system to share your news.
  - b. **Invite** Alex to share his news “your turn”.
  - c. **Wait** for Alex.
  - d. **Respond** to Alex’s communication (Make a comment, Ask a question).
  - e. If Alex, doesn’t respond, **Model** a response: “you could say ...”
5. Class into donut to practice sharing news and asking questions. Experts and adults giving assistance. Option to at first choose one or two words in each sentence to model on AAC and others verbal. When get more confident increase proportion of AAC words.

### Week 2-5:

- Class remains in donut format, gets increasingly used to modelling, asking questions.
- News-sharing occurs often as possible Mon-Thurs mornings (Friday in assembly).
- Class iPads available during day for class to practice.

## Appendix S: Coding Book

Codes	Sub-code	Description	Example
Enhancing Participation	Photo Supports	Refers to use of visual aid to support news-sharing – supporting peers and Alex	<p>Sophie: (gives Alex her phone) <i>do you want to choose something to talk about?</i></p> <p>Alex: (scrolls through pictures to find one of himself jumping on a trampoline)</p> <p>Sophie: <i>Cool, you're jumping on a trampoline, can you say that?</i></p> <p>Alex: <i>I am jumping on trampoline</i></p>
	Lack of participation	Shows areas or times where Alex's level of participation is low.	<i>"He (Alex) doesn't really use it (his device) in class"</i>
	Attending to peers	Shows instances where Alex is observed to be listening to peers and gives appropriate comment or response	<p>Peer: <i>On the weekend I went to McDonalds</i></p> <p>Alex: <i>French fries chicken nuggets</i></p>
	Participation beyond news-sharing	Shows increased participation beyond intervention time-slot	<i>"we play the compliments game, and before he would refuse to do it, but he's more willing to do other things with the class, so like he will get up and he'll pull them back in, like little things like that, that I've noticed he's doing more often, which is nice"</i>
Creating a communicably accessible		Shows a lack of social interactions between Alex and his peers	Jen reported that Alex did not have a lot of engagement with his peers in the classroom, other than two students who were assigned as his 'helpers' to

	Lack of social interaction		go and collect the school milk with him.
	Peer social hesitancy	Shows peers hesitant to make eye contact, intimidated by Alex	<p>Peer 1: <i>I got a haircut</i></p> <p>Alex: no response</p> <p>Peer 1: <i>do you have any news</i> (verbal) (researcher prompted to ask)</p> <p>Alex: no response</p> <p>Peer 1: <i>today it is rugby</i> (required further prompting from researcher to continue conversation, did not make eye contact with Alex.)</p> <p>Alex: no response</p>
	Peer operational difficulty	Indicates difficulty shown by peers in operating AAC system, and slowness in creating sentences	Peer: <i>"I like kangaroos"</i> very slow, taking 2.5 mins to make sentence
	Alex as expert	Shows peers asking Alex for help or acknowledging him as AAC expert	<i>"Alex, where is 'this'?"</i>
	Peer engagement	Shows peers engaging and showing enjoyment in AAC use	<i>"The kids, they just love it, they love showing people. Like we had parent-teacher interviews and they showed all their parents how to use it"</i>
	Peer outcomes	Indicates outcomes for peers beyond socially	<i>"and actually, it's helping with their literacy skills, because its oral language, its reading, and its writing, it's the three components so it's really"</i>

		communicating with Alex	<i>good. And even my low readers who are kind of reading like Level 7, Level 8, like Kyle's reading low, like he could do it, he could write a simple sentence</i>
	AAC awareness	Shows growth and development of AAC awareness over course of intervention	<i>when I asked, 'Why is it important to learn AAC?' they were like 'you can communicate with people who can't talk, you can include others and help others share' and somebody said, 'you can learn how to read and write', which I thought was really cool"</i>
Promoting Teacher Agency	Lack of support	Indicates lack of support previously provided to teacher	<i>"how was the system introduced to you?"  "it wasn't, really"</i>
	Collaborative roles	Refers to nature of roles taken within the collaborative partnership	Jen asked if we could do a sharing circle format again- in order to regain socio-cultural focus of activity- negotiated to do in two small groups
	Increasing Agency	Demonstrates teacher's increasing confidence and agency in teaching and using AAC over course of intervention	<i>"I didn't know how to use it at the beginning, and we use it all the time now.... It just gives you more of a confidence to use it. Like I could pick up the device and quite confidently communicate with anyone."</i>
	Incorporating AAC beyond intervention	Gives example of teacher incorporating AAC into the classroom outside of intervention time, and after intervention has finished	<i>"And I'll go up to him and I'll ask him 'what did you do last night?' and he needs the prompting like "did you play with Alex, did you read a book?" and then he'll be able to tell you if you give him a number of choices, so I try to do that before school."</i>

	Engaging in reflection	Shows teacher engaging in professional and critical evaluation of intervention	<i>and because of the way we did it in groups, they didn't think "oh I can only just use this with Alex, I can communicate with anyone"</i>
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## Appendix T: Examples of coding process

Example of coding process from combined observation transcripts, field notes and AAC system data.

<ul style="list-style-type: none"><li>Peer: how is Noah today?</li><li>Alex: brother Noah feel angry he feel angry yes brother Noah?</li><li>Jen: what are you doing?</li><li>Alex: "milk carrying milk"</li><li>Peer: on the weekend I went to McDonalds</li><li>Alex: French fries chicken nuggets</li><li>Peer: do you like McDonalds?</li><li>Alex: French fries chicken nuggets</li></ul>	<ul style="list-style-type: none"><li>Alex didn't know how to talk about picture, kept putting hands up and shrugging, no modelling offered.</li><li>Other student shared how he went to McDonalds on the weekend, Alex spontaneously piped in "French fries, chicken nuggets"- got positive response from peers and Jen.</li><li>Peers asked him more questions about McDonalds- "do you like McDonalds" "What do you have at McDonalds"- Alex enjoying attention</li><li>Talked about trying to use different pictures each time</li></ul>	<div>AY Amy Young Increased independence- PARTICIPATION</div> <div>AY Amy Young Need for additional modelling training for TA LIMITATIONS</div> <div>AY Amy Young Attending, responding to peers</div> <div>AY Amy Young Peer engagement ENGAGEMENT</div>
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## Example of coding process from interview transcript data

What did you think of the intervention?

It was so cool, cos I didn't know how to use it at the beginning, so and we use it all the time now so like the kids that take Alex to do the milk, ask him "would you like to come and do the milk?" and they talk to him. When the kids have free time, they want to use it, like its really cool, like Annabelle just loves it, like everyday she would go and use it in the afternoons.

And its cool for the kids as well, and even Alex is using it more, cos I reckon he was kinda disengaged, like not with the class but kind of it was just Sophie who could really talk to him. Like, I could talk to him, but he wouldn't necessarily respond and I didn't know how to prompt him to respond, so I think he's more involved, because now any of the kids can go and ask him to do something.

And the kids, they just love it, they love showing people. Like we had parent-teacher interviews and they showed all their parents how to use it, like it was so cool.

What do you think worked about it and what didn't work?

I think teaching them how to use it, they loved, and sometimes we just put a picture up still and they have to learn and find how to describe what it is. So that's really cool. I think it was kind of hard sometimes getting Alex to share, and prompting him, but I think that's just sometimes everything else that Alex has going on, its not necessarily the... and that could be hard, because some days you'd sit there and be like "oh that's so cool" and other days its like "come on Alex, we know you can do this". And I think its just continuing it, so we've got a good base now, so now like building on it. Like even this week when we've done what's on Top, I think he shared once, and the other times he didn't want to, but instead of just sitting there, he'd go "no", so he's still thinking

<div>AY Amy Young Peer engagement ENVIRONMENT</div> <div>AY Amy Young Participation beyond new-sharing PARTICIPATION</div> <div>AY Amy Young Development of teacher competence AGENCY TEACHER</div> <div>AY Amy Young Increased communication partners ENVIRONMENT</div> <div>AY Amy Young Peer Engagement ENVIRONMENT</div>	<div>AY Amy Young Peer engagement ENVIRONMENT</div> <div>AY Amy Young Participation beyond new-sharing PARTICIPATION</div> <div>AY Amy Young Development of teacher competence AGENCY TEACHER</div> <div>AY Amy Young Increased communication partners ENVIRONMENT</div> <div>AY Amy Young Peer Engagement ENVIRONMENT</div>
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