CENTRE FOR AUTISM

MIDDLETOWN

Communication Strategies to Support Children and Young People with Severe and Profound Learning Difficulties

CONTENTS

INTRODUCTION

This is the twenty fifth Research Bulletin produced by Middletown Centre for Autism and it provides summaries of nine articles spanning from 2013-2017. The research summarised covers a range of practical approaches that can be used to promote effective communication with children and young people with autism.

The Bulletin commences with an interview with Dr Susan Sheridan.

Dr Susan Sheridan has more than 40 years of experience in education, specialising in autism and intellectual disabilities. She has taught students with special needs of all ages, in addition to teaching at a higher education level.

Dr Sheridan has worked as a Special Education Consultant for the Harris County Department of Education for 19 years and has also worked in private consulting for 16 years.   In addition to this, Dr Sheridan continues to work within school districts across Texas and consults in Saudi Arabia for the Centre for Autism Research at the King Faisal Specialist Research Hospital in Riyadh.   For over 12 years, Dr Sheridan has conducted social skills groups and her special interests include functional assessment and social skills development.

Please note that the views represented in this document do not necessarily reflect the views of Middletown Centre for Autism. Reviewers have, where possible, used the original language of the article, which may differ from UK and Ireland usage and the usage of a range of terminologies for autism.

AN INTERVIEW WITH DR SUSAN SHERIDAN

1. What is the most important consideration for teachers when communicating with children and young people with autism and severe and profound learning difficulties?

Every student is an individual. It is difficult to say that there is just one consideration that is most important for all students with autism and/or severe to profound learning difficulties. However, with that being understood, I'd like to share some of the considerations my students have taught me. (1) **Do not assume a lack of ability. Become an expert observer of any indication of understanding, interest and/or communication intent.** There are so many ways to communicate and it is up to parents, teachers, therapists and all of us to learn how this individual communicates and then help him/her to communicate in more understandable ways and with a larger group of people. (2) **Treat the individual with respect.** This means waiting for an answer when a question is asked, not saying negative things about the individual to others when the individual is present, encouraging the individual to be a part of a group in a relevant and meaningful way and not talking down to the individual. (3) **Everyone is a teacher of communication skills.** Parents, siblings, teachers, therapists, television, movies, computers and mobile phones all influence the individual's communication opportunities and teach communication skills. When one of my friends in our social group says something inappropriate or something I don't think they really understand, I often ask where they heard that. Most of the time it was on TV, in a video or YouTube and they really do not understand what it means or the importance (sometimes) of not saying it again.

2. How can parents and professionals better assist each other to support children and young people with autism and severe and profound learning difficulties?

I believe the best way for everyone involved with the child, young person or student is to **communicate** with each other. Parents have a wealth of understanding, knowledge, experience and expertise with their child. Let the teachers know the things you have learned such as your child's favourite foods, colours, interests, clothes, anything that will help communicate with your child. What funny thing did your child do last night? What are the names of the family pets? When are relatives and friends coming to visit? All of this information is invaluable to teachers or therapists or anyone who works with the student. This information helps professionals gain the student's attention, interest, and trust. It's a great place from which to start and continue relevant communication. Teachers also need to communicate to parents, especially the good things the student does at school. This doesn't have to be a long or arduous task. Just a comment, phone message, email, text about the child helping in holding a cup, laughing with the class at a funny incident, eating a new food, anything that may be important for families to hear. As much as possible communicate the good things in front of the student, whether or not you feel he or she understands all that is being said. When a student has very limited communication skills, it is difficult to know what went on at school. This also limits what the parents can say to their child about his/her school day. Communication is a key in helping each other.

3. How can schools adapt the school curriculum best to meet the needs of children and young people with autism and severe and profound learning difficulties?

It is often challenging to adapt a regular school curriculum to meet the needs of students with autism and/or severe to profound learning difficulties. It is important to help the individual learn those things that are essential in the general education curriculum and still meet the needs of students who have unique and individual challenges. I have found the concept of pre-requisite skills to be helpful. This is especially true with communication. If, for example, a young student in general education classes is learning to count, we as teachers of students with autism and/or severe to profound learning difficulties must determine what is pre-requisite to learning to count. Perhaps one of our students is learning to focus on the speaker when his or her name is called, one of our students may be learning the difference between one and all, and another may be learning the difference between big and little. All of these things are pre-requisite to learning to count and at the same time appropriate goals for a student with autism and/or severe to profound learning needs. We must have a good understanding and resources for learning what is absolutely necessary for the student to understand before he or she can be taught the skills being taught in the school curriculum. Then, we need to know how to teach these skills and understandings whenever and wherever we can, while meeting the needs of the student with very special learning challenges. This might be while changing a diaper, while feeding, while working with the physical therapist, while getting into a wheelchair, wherever and whenever it is possible to teach the pre-requisite skills, this should be done. Many students with autism and/or severe to profound learning challenges spend much of their school day in therapy, in self-care activities, in medical activities, so incorporating pre-requisite skills into these activities is helpful and also teaches the application of the skills and concepts being taught.

4. How important are apps and other technical devices in supporting the communication of children and young people with autism and severe and profound learning difficulties?

I believe that apps and technical devices can be very helpful in supporting communication of children on the autism spectrum and/or students with severe to profound learning difficulties. This is broader than the actual content being learned from the app or device. It has to do with dignity, interest, communication using age-appropriate and meaningful resources and sharing experiences with other students who may not have communication limitations. When other students see the individual, who was deemed to be so different or non-responsive, fascinated by a computer game, there is a new understanding that we all have more in common than previously thought. So, the competence and humanity of that student is now seen in a new light. One student's mother programmed a "joke of the day" onto her son's device each morning and students could hardly wait to ask her son to tell them the joke each day. In addition, the app or device shows that this student perhaps really does see the likenesses when matching the shapes in a game,

really does get excited when the programme claps and confetti flies on the screen after a correct answer or does have an interest in Thomas the Tank Engine like others in class. All of these things are considerations in addition to the cognitive facts or information that might be learned in an app or on a technical device. As with all teaching strategies, technology must be used wisely and the student's real life needs must be taught, practiced and generalised through the school programme.

5. How can TEACCH based strategies be adapted to better assist children with autism and severe and profound difficulties communicate?

TEACCH based strategies are extremely appropriate to use with young children, students or individuals with autism and/or severe to profound learning needs because they teach directly to the characteristics of the individual and capitalise on how that individual learns. I appreciate that you asked how these strategies can be adapted. Every strategy used should be adapted to meet the learning needs, learning characteristics, and interests of the individual student. By **structuring the environment,** the individual is taught to use visual cues to become more independent, to know where and with whom to go for help and to use this type of information as a life-long strategy. **Scheduling** is another important TEACCH strategy that speaks directly to the needs of students with autism and/or severe to profound learning difficulties. By helping the student understand what is to be done, when a favourite activity is coming and

what work is required before a specific time, it frees the student to learn in a more relaxed manner. It also builds important habits for tasks of daily living, future work, and organisation in general. **Task organisation** is helpful because it lets the students know what is to be done, everything is present that is needed and what to do when finished. Often there is an example of the task as well. In terms of communication, we use a modified TEACCH strategy in the social group I work with on a weekly basis. We have been together for many years and now the participants are in their 20s. We get together for a "meeting" each week before going into the community. At the meeting, each person tells one good thing that has happen to him or her that week, decides on something they are going to do for someone else in the coming week (usually a parent) and says something nice about someone else in the room. The structure of this routine helps even those who are the most challenged in communication skills. It also provides a leadership role for those who are more verbal but have never had the opportunity to be a leader. We have been doing this for perhaps eight years and although there was complaining at first, now they look forward to exciting things they will tell the group or being complimented by a friend. The great thing about TEACCH strategies is that they provide the structure and the teacher, parent, therapist, leader can provide the content so the activity is more successful for students on the autism spectrum and/or students with severe to profound difficulties.

6. How can teachers approach autism specific strategies for children with autism and visual impairment?

Every student is unique and has unique needs for instruction. Helping students be aware of their surroundings through physically organising the environment, helping them become aware of various cues in the environment, learning to ask questions, learning to make choices are teaching strategies that are essential when working with a student with a visual impairment and other learning challenges. It is equally important for a student with autism who may not notice things in the environment due to thinking about other things, trying to get to a favourite item or other distractions. I have used calendar systems, schedules, functional routines, all types of strategies that were developed for people with autism with other students. These strategies are often very successful because they are good, carefully planned ways to help all types of learners achieve the goals needed. I really believe we must look at the individual and the individual's characteristics, learning abilities, interests, needs, and then use the strategies that are most appropriate.

7. What methods/assessments can be used to effectively assess social communication levels with children and young people with severe and profound difficulties?

Use of developmental checklists, functional checklists, pragmatic inventories, adapted scope and sequence lists are all relevant. The individual doing the assessment must be a good observer of all the individual can do. The main purpose of this type of assessment should be to find the most that individual understands, knows and can do. Then, we have good information for instruction in the social communication area. When I do assessments of this population, I like to use a video camera and study the session going over and over what was said and done and what the individual's responses were. We must also make certain the individual is as comfortable as possible to get the best results. We want to know the **most** that individual knows, understands and can do. We do not need to compare them with others.
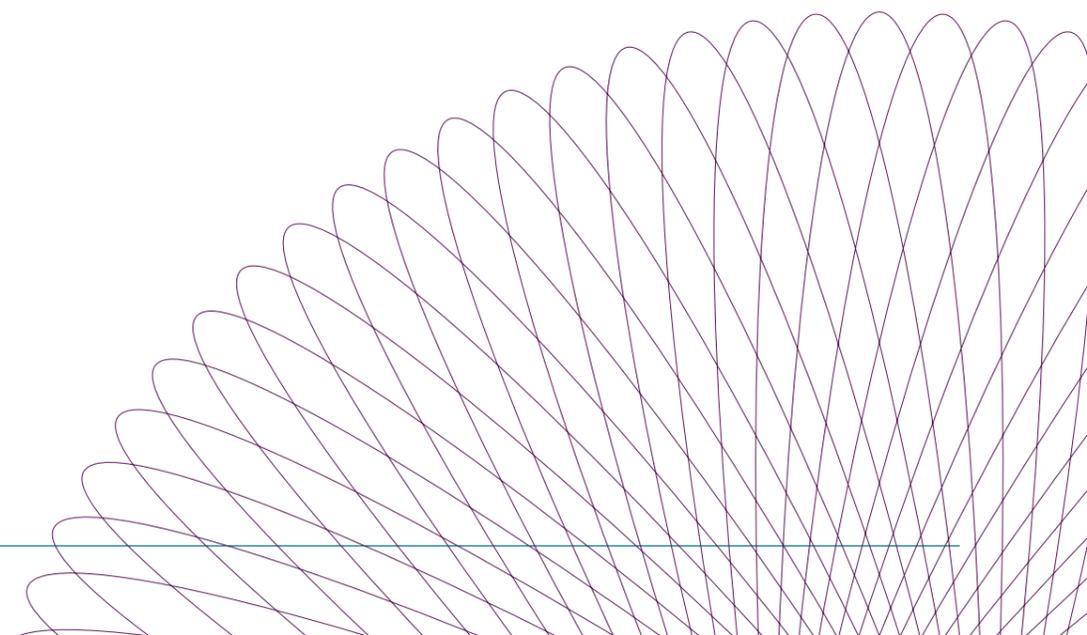
IMPLEMENTING TABLET-BASED DEVICES TO IMPROVE COMMUNICATION SKILLS OF STUDENTS WITH AUTISM

BACKGROUND

Practitioners often use augmentative alternative communication (AAC) devices to address the communication needs of individuals with autism. AAC methods can be separated into two categories: unaided and aided. Unaided refers to the use of body parts to communicate e.g. manual signs, body language. Aided methods require the use of devices or support e.g. pictures/symbols, speech-generating devices (SGD). Recently, the AAC field has been adopting the use of mobile touch-screen devices (e.g. tablets) and AAC applications (apps) as SGDs. Research supports the use of tablets for improving communication skills in individuals with autism and their use has several advantages including social acceptability, affordability, portability etc. Due to the extensive use of iPads/iPods as AAC devices for students with autism, this paper focuses on the use of these devices. An app is defined as software that is designed for the user to complete a specific task. Research indicates that apps (e.g. Proloquo2Go) have improved communication skills in students with autism. Special education teachers and related service personnel can implement iPads/iPods as SGDs successfully.

RESEARCH AIMS

This paper aims to create guidelines for special education teachers for selecting an iPad/iPod and AAC app that meets the student's requirements and assist in implementing the method effectively.

RESEARCH FINDINGS

The guidelines can benefit special education teachers who deal with students with autism who are nonverbal or have very limited social communication skills. These guidelines can be modified based on the student's abilities and requirements.

Assess the student's related abilities

A multidisciplinary team needs to collaborate to create a comprehensive profile of a student's wants and abilities. Gathering information about the student's hearing, vision, motor skills, linguistic and pre-linguistic skills, problem behaviours, and cognitive abilities are important and will assist the team to select appropriate iPads or iPods and AAC apps.

Symbol assessment is important for the successful implementation of AAC as it assists the team in selecting appropriate items that are functional for students. Symbols include photographs, real or miniature objects, line drawings or written words. Symbol assessment for students with severe communication problems involves gathering a list of the student's familiar items/activities and assessing the functional use of the objects by placing them in front of the student and checking if he/she uses them (e.g. eating with a spoon).

Special education teachers should also evaluate the student's ability to receptively label or name items in his/her environment e.g. placing two objects/pictures in front of the student and checking if he/she can point to the correct one named by the teacher. A visual matching method can also be used e.g. the teacher can provide an object and two symbols (one that exactly matches the object) and see if the student correctly matches the object and the symbol through pointing or eye gaze.

Some students with autism rely on pre-linguistic skills as a way to communicate e.g. reaching, pointing, guiding someone's hand. The special education teacher should document the communication form that a student uses to get attention or requests for items and activities. They should also record the frequency of the student's requests using an appropriate form of communication (e.g. pointing) and inappropriate behaviours (e.g. self-injurious behaviours). This allows the special education teacher to determine the likelihood of the effectiveness of the intervention by comparing the number of times the student throws a tantrum as form of communication to the number of times he/she uses the iPad to ask for attention or an item appropriately.

Select a device and app

Choosing an appropriate iPad or iPod and an AAC app that matches the student's characteristics and needs is the key for successful implementation of the intervention. A small screen tablet may be beneficial for a student who has well-developed fine motor skills, while a tablet with a larger screen may help another student with low vision. Protective cases for devices may also need to be used, especially for students who engage in severely aggressive behaviours frequently. Selecting an appropriate AAC app is as important as selecting a device. A picture-based application (e.g. iComm) may be useful for students who have low intellectual functioning and/or no prior AAC experiences. For students who are nonverbal and have a reasonable level of vocabulary, the teacher might want to select advanced AAC apps that match their communication level e.g. Proloquo2Go.

Conduct a preference assessment

Special education teachers can conduct preference assessments to identify preferred items and activities to facilitate learner motivation. This can be done using indirect (e.g. asking parents/caregivers) or direct methods (e.g. natural observations or trial-based assessments). Identifying target behaviours (i.e. requests) that are used in daily routines is an essential step in implementing AAC interventions. Requesting skills are basic communication skills that are important to teach before proceeding to the other complex communication skills. One way to identify a vocabulary meaningful for the student is to conduct observations in context where the student is motivated to communicate. Results from preference assessments will assist the team in selecting meaningful vocabulary and target behaviours. Programming an iPad/iPod with words/phrases that the student rarely uses would more likely make the device meaningless for the student.

Systematic instructional methods

Special education teachers are encouraged to first target requesting skills in children with autism using single words (e.g. request music by tapping on the 'music' icon on the Proloquo2Go app on an iPad). More complex sentences can then be built (e.g. tapping the 'I want' icon on the home screen, and 'music' icon subsequently on the Proloquo2Go app) adding 'please' after making simple requests. Additional strategies recommended when teaching communication skills using iPad/iPod-based SGDs include least-to-most prompting, time delay, discrete-trail teaching and incidental teaching. Special education teachers, parents/caregivers and other professionals need to be trained on how to implement iPad/iPod-based SGDs through the assistive technology services at the school district, local or a state agency.

Collect intervention data and evaluate progress

Data collection during the teaching phase is important to evaluate the impact of the intervention. Teachers can compare data on requesting skills from baseline to intervention phases through simple graphs. If requesting skills do not increase across five to six teaching sessions, it is important to re-evaluate and consider additional strategies or modifications.

Programme for generalisation

Generalisation refers to applying the learned response in novel situations. Programming for generalisation includes providing training opportunities throughout the day across different settings, communication partners and items.

Teach operational skills

An AAC user must acquire operational skills to use the iPads/iPods independently e.g. turning on/off the device, changing the volume, swiping to the next page. Additional operational skills include accessing the app, selecting the category and specific symbols, scrolling down the page to see more symbols and combining symbols to create sentences. Teachers can break down the steps required to use a device into teachable tasks before starting an intervention with the student.

IMPLICATIONS FOR PRACTICE (by the authors)

- Recent developments in mobile devices and touch screen technology offer new teaching opportunities for professionals working with students with autism.

- The use of iPad/iPod-based SGDs may be an effective method to improve communication skills in students with autism.

- By following the steps and procedures described in this article, the teacher may implement iPads/iPods with AAC apps, measure progress, and evaluate their effectiveness with students with autism.

Full Reference

Alzrayer, N. M. and Banda, D. R. (2017). Implementing Tablet-Based Devices to Improve Communication Skills of Students with Autism. *Intervention in School and Clinic, 53(1),* p. 50-57.
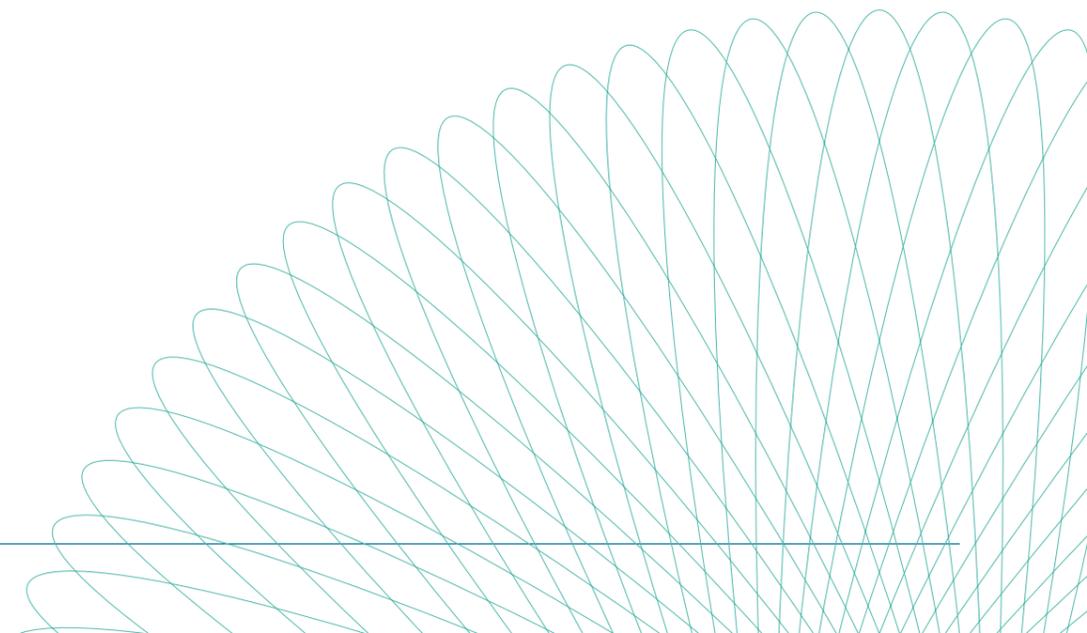
AN IPAD-BASED INTERVENTION FOR TEACHING PICTURE AND WORD MATCHING TO A STUDENT WITH ASD AND SEVERE COMMUNICATION IMPAIRMENT

BACKGROUND

Pre-literacy and literacy skills require early language development and more specifically vocabulary acquisition. Picture naming is one strategy which helps to enhance vocabulary acquisition. For example, a teacher may show a student a picture of an animal e.g. a pig and ask them what it is. The student would respond verbally, and this is typically followed up by praise. If an incorrect or non-response is given this too may be followed by an error correction or prompt, e.g. 'not quite, it is a cow, say cow'). Studies have indicated that students with autism/ developmental disabilities (DD) who may have a severe communication impairment may be excluded from such activities as they are not be able to respond using intelligible speech.

Although the use of new technology to support students with autism and related developmental disabilities is not a new concept, there has been little research to date that has investigated the utilisation of iPads to improve academic skills such as picture/word matching. As a result, it has been suggested that researchers need to provide more empirical evidence that supports/contests the anecdotal claims and media coverage that promote the premise that teaching and learning has been changed for these students using mobile technologies such as iPods and iPads.

To date the literature suggests that students with autism/DD require systematic instruction to support their communication/language, social and academic progress. A critical need therefore for technology-based interventions requires the use of well-established instructional strategies such as response prompting, time-delay and differential reinforcement.

RESEARCH AIMS

The primary aim of this study was to extend upon previous research to assess whether using the same instructional strategies to teach picture naming/matching with an iPad SGD (speech generating device) as the response mode could also be used to teach word to picture, picture to word and word to word matching.

Authors also aimed to demonstrate effective procedures for teaching these skills to a student with autism/DD who may require an alternative response mode due to severe communication impairment. This demonstration was deemed important because targeting both picture and word matching is relevant to a range of academic/ literacy skills and the technology may enable students with autism to participate in such activities which they may otherwise be excluded from.

RESEARCH METHODS

Following ethical approval, a single case-experimental design was employed, and parental consent gained from the parents of a boy aged 10 years and 2 months with a diagnosis of autism to participate in this study.

Prior to conducting the study, the child was assessed using a range of assessments which indicated the following baseline information about the child: i.e. the child was reported as having age equivalences of 1 year 7 months for expressive communication, 1 year 4 months for repetitive communication and 4 years and 2 months for written communication. The child was also able to say fifteen meaningful words but was not observed to frequently use two-word phrases, language primarily comprised of delayed echolalia.   The child could attend to pictures and was observed to respond to 'give me' and understood approximately 50 words. The child pointed/gestured with his fingers or grabbed

another person's hand/arm to gain attention and request objects. To indicate rejection or disagreement the child would scream, throw a tantrum or flop his body around.

A multiple baseline across matching tasks design was used to evaluate the effects of a graduated guidance prompting procedure and differential reinforcement on correct matching across four matching tasks (i.e. picture to picture, word to picture, picture to word, and word to word). Matching of tasks occurred following a sequence of phases: baseline, intervention, follow-up and random order.

The study was conducted in a university clinical room and implemented by both a doctoral and master's student completing degrees in educational psychology. An independent observer was present during 76% of the sessions to collect inter-observer and procedural integrity data.

Twelve colour picture cards were selected from the picture-vocabulary book for children: The Osborne First Picture Word Book. Each picture was printed on a card. Pictures were separated into three categories with four pictures in each (a) clothes, (b) animals and (c) food. The corresponding word was printed on the other side of each opaque picture card.

The iPad was configured with three screen pages. Each screen page contained the same categories (clothes, animals and food) and four items within each category. Non-identical colour pictures, however, were selected from the Proloquo2Go symbol set. Below each picture the corresponding word was written. The iPad was also configured with three more screen pages. Instead of pictures, each screen page contained the same categories (clothes, animals and food) with the word only of each item in the categories.

Preferred stimuli

Stimuli that the participant appeared to prefer were informed by the child's parents. These included toys and snacks (in this case potato crisps) that were deemed appropriate to use as reinforcers to reward a correct response. Although potato crisps were offered initially after each trial they were reduced to after every fourth trial.

Response definitions, measurement and session schedule

The child attended a 60-minute clinical session one day per week over nine months. Four to five sessions were conducted within each clinical session. Each session consisted of 12 trials. The percentage of correct responses was calculated for each training session. A correct response was defined as independently touching, only once the picture or word on the iPad corresponding to the card he was shown. Touching the picture or word on the iPad activated the voice output.

After the second day of the intervention the child received corrective lenses and wore these for the remainder of the intervention. The child's hearing was reported to be in the normal age range and he did not have any major or obvious difficulties with gross or fine motor skills.

Baseline

For each trial, only one card with a picture/word from one of the four categories was shown to the child with the iPad placed directly in front of him with a screen that showed four pictures/words of which one corresponded to what was shown to the child. The child was asked what they saw/ read on the card and given ten seconds to respond via the iPad. The child was not prompted during baseline. Contingent social reinforcement was given for on task behaviour, e.g., nice sitting if the child remained sitting at the table with the iPad.

Intervention

As the child touched the pictures on the iPad several times during each baseline trial, the procedures of intervention were designed to reduce this i.e. the instructor asked the child to touch the correct picture only once or only using light physical prompting if required for the child to keep his hands on the table.

Follow-up

Procedures were identical to the baseline except that social reinforcement was only given this time for a correct response. Follow up for picture to picture matching occurred five weeks after the last intervention session for this specific task. Word to picture intervention occurred one week after the last intervention session for this task, whilst follow up for the random order and no label phase for word to picture matching occurred two months after the last intervention session for this task. Picture to word and word to word matching tasks did not have any follow up sessions.

Random order phase took place straightaway after follow-up. The procedures were no different to the follow up sessions apart from the fact that the order of the picture/word cards were randomised

Procedural modifications

Three modifications were made. After session 18, tangible reinforcements were reduced to giving one potation crisp after every fourth trial. After the random order phase of word to picture matching the word below the picture on the iPad was removed as well as randomising the order of the presentation of the pictures on the iPad. This modification was made in an attempt to reduce the possibility that the child might only be learning word to word rather than word to picture matching. Baseline procedures followed those previously described. Intervention was

then introduced with a 10 second delay before prompting. Prompting and reinforcement procedures were identical to those described during the intervention procedure. As generalisation of learning occurred during the picture to word and word to word matching tasks a final modification was made whereby intervention was not considered necessary and the random order condition was introduced instantly after baseline.

RESEARCH FINDINGS

During all three baseline sessions for each of the following matching tasks i.e. picture to picture, word to picture, picture to word and word to word the child initially made 0% correct responses. Following intervention, the child identified more correct matching across all four areas. This suggests that employing systematic instructional strategies, i.e. graduated guidance and reinforcement, is an effective approach for teaching picture and word matching to students with autism/DD and severe communication impairment. Furthermore, the procedures involved in teaching were also considered effective in reducing repetitive responding i.e. touching pictures on the iPad several times during the trial period.

Using an iPad-based SGD as the response mode can therefore be considered to assist the individual with autism and severe communication impairments to successfully learn picture and word matching.

It should be noted however that although the study was designed to teach picture to word and word to word matching, it was found that these matching skills could also be generalised to high levels of correct responding without the need for systematic instruction.

## IMPLICATIONS FOR PRACTICE
(by the authors)

The authors suggest that the approach outlined in this study may have relevance for teaching a range of academic/literacy skills to students with ASD who present with limited or no speech. Regarding implications for practice, the authors have highlighted that the findings should be applied with caution due to a number of limitations. For example, the task could be viewed as a simple repetitive matching activity that does not necessarily require a voice output for an individual. Therefore, the need for an SGD is not technically required to complete such a task. The individual may only need to point to the correct image/word which does not necessarily have to be presented on an iPad. Nevertheless, the authors have noted that the speech output from the SGD may prove advantageous in improving an individual's social image and in providing feedback regarding the vocal label of the stimulus and may therefore prove to be a more effective signal to listeners.

As only one child was involved in this study the findings limit their generalisability to others with autism and severe communication impairments. Furthermore, there were no pre-and post-intervention checks to assess whether the child understood the target pictures/words.

Finally, it should also be noted that as impairments in social communication and interaction skills are characteristic of autism, if the child had not received a tangible reinforcement, which was initially provided after each trial but then systematically reduced, they may not have been motivated to participate. This should therefore be borne in mind in practice as an effective method of increasing and maintaining motivation to attend to a picture or word matching task.

Full Reference

Van der Meer, L., Achmadi, D., Cooijmans, M., Didden, R., Lancioni, G. E. and O'Reilly, M. F. et al. (2015). An iPad-Based Intervention for Teaching Picture and Word Matching to a Student with ASD and Severe Communication Impairment. *Journal of Developmental and Physical Disabilities,* 27(1), p. 67-78.
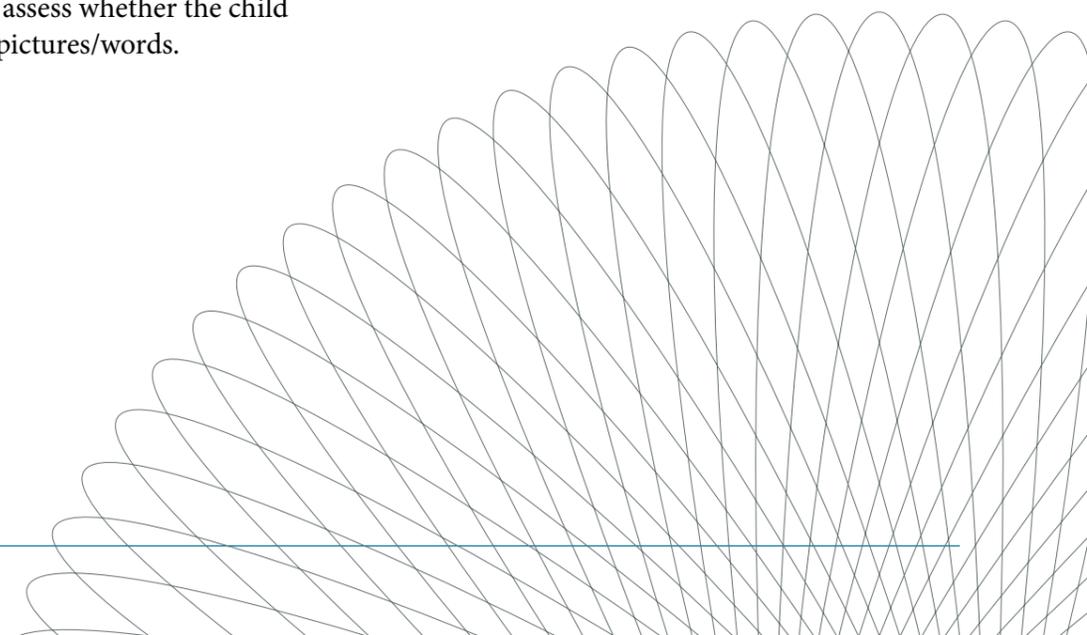
COMBINING PARENT-CHILD INTERACTION THERAPY AND VISUAL SUPPORTS FOR THE TREATMENT OF CHALLENGING BEHAVIOR IN A CHILD WITH AUTISM AND INTELLECTUAL DISABILITIES AND COMORBID EPILEPSY

BACKGROUND

The authors claim that those children with autism and a learning difficulty are at a greater risk of also having epilepsy, which by its nature, can have a negative impact on their ability to develop accordingly and may increase their chances of having associated behavioural difficulties or disorders. These challenging behaviours, including anxiety, obsessive–compulsive and repetitive behaviours, sleep disturbances, inattention, non-compliance, and aggression, may in turn have repercussions for successful interactions, thus resulting in fewer positive teaching and learning experiences, both in the family home and in school.

This single child case study, a five-year-old girl with a diagnosis of autism, learning difficulties and epilepsy, examines the use of a Parent Child Interaction Therapy (PCIT) and the use of visual strategies, to promote an improvement in behavioural issues that will positively affect the parent, the child, the school and ultimately the community.

PCIT is a combined skills approach, taught over 14-20 live coaching sessions and practiced for five minutes daily, drawing on the strengths and concepts of behavioural, play and attachment theories and therapies. The aim is to enhance the parent-child relationship, consequently allowing greater opportunities to support successful development of the child and empowering the parents.

RESEARCH AIMS

This case study was developed as a means of ascertaining whether the use of this particular programme, which combines PCIT, a behaviour management approach which is reliant on parental verbal instructions and interactions, with the use of visual strategies supportive of children with autism, improves the quality and quantity of teaching and learning experiences needed for successful maturation for a child with autism, learning difficulties and epilepsy. The researchers also aim to show how the empowerment of the parents and the development of the child can lead to a decrease in the intensity and number of challenging behaviour incidents.

RESEARCH METHODS

After initial assessment of the child's difficulties from a variety of sources, school and home, where the intensity and perception of the behavioural issues were recognised, the parents were schooled through the PCIT process. The parents were in full agreement as to how to proceed with the recommendations, both curtailing their work commitments to ensure that they availed of every opportunity. A night-time visual schedule was introduced, as this was a particular area of concern for the family. The schedule was differentiated to meet the child's needs, with every step along the process clearly defined and the parents consistently used the approach, even though an extinction burst i.e. the concept of elimination of a behaviour by refusing to reinforce it, was visible. The parents also read a social story, where the child was the focus, clearly setting out the expectations of the interactions of PCIT and the schedule.

RESEARCH FINDINGS

The initial findings were positive. The parents found that the number and intensity of the behavioural-based incidents had decreased and allowed them, as a family, to engage in activities such as going out for dinner, shopping, day trips. The child's older siblings also offered to baby sit on a more regular basis, thus allowing the parents to spend some time alone. Therefore, there was an increase in the volume and success of learning experiences.

The child's teacher reported that there was an increase in functional play skills and attention span, thus allowing for more effective opportunities for teaching and learning.

However, circumstances within the child's life changed. On returning to school after the summer holidays she moved class and thus her teacher and her health professionals changed; with these changes, her behaviour returned to almost the same level as pre-intervention.

IMPLICATIONS FOR PRACTICE
(by the authors)

- Societal, environmental and care issues must also be considered if a lasting impact of any intervention is to be noted. The holistic needs of the child must be considered.

- Information and good practice need to be shared between all, teachers, health professionals and parents, during times of change or transition to ensure a consistent and predictable approach as the child may become frustrated and revert to behaviours that were displayed in the past.

- Special attention must be given when the child is transitioning within classes at school and the successful approaches used in the previous class must be transferred to the new class. The child with autism needs this level of consistency.

- The use of visual strategies must be considered for the child with autism and limited communication. The child with autism needs a means of expressing his or her preferences, needs and wants in a socially acceptable and effective manner rather than resorting to engaging in behavioural responses.

- The Parent Professional Partnership is crucial to the design, delivery and evaluation of any supportive intervention, where the mutually respectful relationship allows for honest communication to support the individual child.

- Any intervention programme needs to address and accommodate all of the issues regarding each individual child with autism. Consideration must also be given to all aspects of the child's autism; difficulties with interaction, communication, behaviours, flexibility of thought, theory of mind and executive function, as well as difficulties pertaining to the associated learning difference and any health conditions including epilepsy.

- Interventions must be across the child's learning environments. Teachers need to be prepared to support the parents and thus the same level of training and teaching must be afforded to the teacher to ensure he or she is prepared and following the same set of guidelines to give the child a whole life approach.

Full Reference

Armstrong, K., Jeffries DeLoatche, K., Kuzia Preece, K. and Agazzi, H. (2015). Combining Parent-Child Interaction Therapy and Visual Supports for the Treatment of Challenging Behavior in a Child with Autism and Intellectual Disabilities and Comorbid Epilepsy. *Clinical Case Studies,* 14(1), p. 3-14.

COMPARING ACQUISITION OF AND PREFERENCE FOR MANUAL SIGNS, PICTURE EXCHANGE, AND SPEECH – GENERATING DEVICES IN NINE CHILDREN WITH AUTISM SPECTRUM DISORDER

BACKGROUND

Alternative communication methods such as manual signs, picture exchange and speech-generating devices are used to support communication skills in children with autism.

- Manual signs involve using specific facial and body movements to represent common words and phrases.
- Picture exchange systems comprise of a visual representation or picture usually on a laminated card. Several picture cards can be placed in a sequence to illustrate language.
- Speech-generating devices comprise of hand held computer devices and computer software programmes. In this study an Apple iPod Touch® or Apple iPad® was used in conjunction with the Proloquo2Go™ application.

RESEARCH AIMS

This study aimed to compare how quickly nine children with autism acquired improved communication skills using manual signs, picture exchange and an iPad/iPod using speech-generating technology and to compare if the children showed a preference for one of these options.

RESEARCH METHODS

Nine children with autism aged four to twelve years, who exhibited very limited or no expressive language were recruited for this study.

Trained instructors taught each participant to request access to a box of toys or a preferred item using the three alternative communication methods during training sessions. Training sessions occurred either in the participant's school or home environment. Each session consisted of five opportunities to request access to the toys or preferred item. Training sessions continued until a child demonstrated 80% or higher correct requesting across three consecutive sessions or, barring that, until the intervention had to end due to logistical and resource constraints.

To assess preference for using one of the three alternative communication methods, the instructors placed communication devices within easy reach of children, giving the child free play with toys then removing the toy while saying 'let me know if you want more'. The children were then prompted to use an alternative communication method (manual sign, picture exchange or speech-generated). Follow-up sessions were conducted three to ten weeks after training sessions concluded.

The trained instructor recorded data on the preference of alternate communication methods and the acquisition of communication skills.

RESEARCH FINDINGS

The results show that five of the nine participants successfully learnt how to use multiple alternative methods. It is important to note that of the remaining four participants, two had difficulty in learning manual signs, one participant did not reach criterion levels with any communication method and one participant was removed from the study by his parents.

All the children most often chose to use the speech-generated device for communication compared to the manual sign or picture exchange options. Four of the eight participants who completed the study, required fewer sessions to learn how to use the speech-generated device compared to the manual sign and picture exchange methods.

## IMPLICATIONS FOR PRACTICE (by the authors)

In this study, children with autism who had limited speech successfully learnt how to communicate using manual sign, picture exchange and speech-generated devices, suggesting that education and healthcare professionals should:

- Teach, support and encourage the use of communication skills through a variety of methods.
- Explore speech-generating devices and software as a means of supporting communication.
- Practice using the child's preferred communication method regularly.
- Explore the effects of using alternative communication methods on verbal communication skills.

Full Reference

Couper, L., Van Der Meer, L., Schäfer, M. C. M., McKenzie, E., McLay, L., O'Reilly, M. F., Lancioni, G., Marschik, P., Sigafoos, J and Sutherland, D. (2014). Comparing Acquisition of and Preference for Manual Signs, Picture Exchange, and Speech-Generating Devices in Nine Children with Autism Spectrum Disorder. *Developmental Neurorehabilitation,* 17(2), p. 99-109.
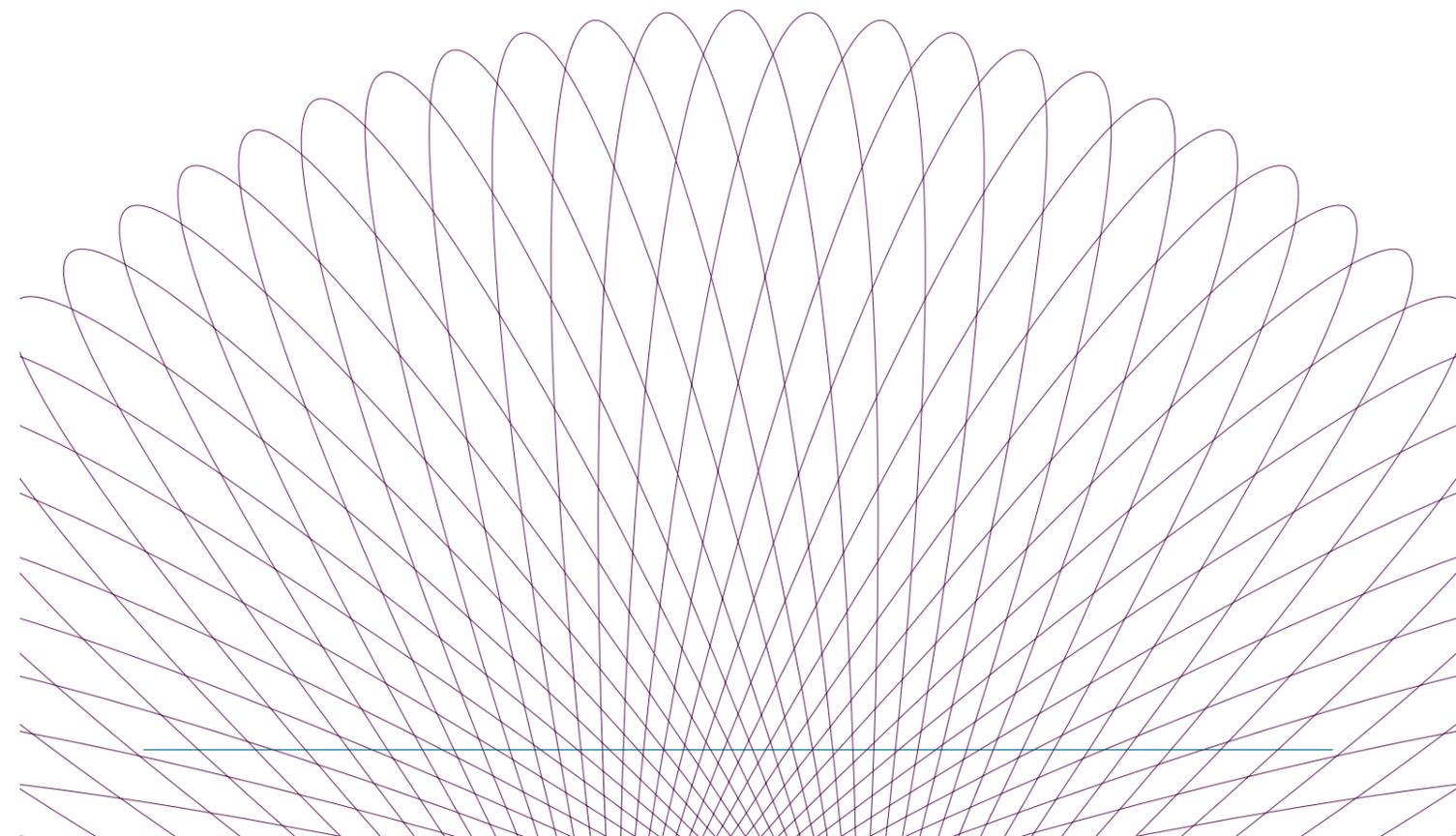
SUPPORTING CHILDREN WITH SEVERE-TO-PROFOUND LEARNING DIFFICULTIES AND COMPLEX COMMUNICATION NEEDS TO MAKE THEIR VIEWS KNOWN: OBSERVATION TOOLS AND METHODS

BACKGROUND

Current policy frameworks in the United Kingdom emphasise the importance of involving young people with special educational needs (SEN) in the decisions that affect their education and well-being. There is little research on the extent to which children's experiences and perspectives are elicited in schools and the methods for doing so. This is particularly true of thoseww who have severe-to-profound learning difficulties and complex communication needs with often idiosyncratic ways of communicating, requiring a skilled adult communication partner for interpretation. Potential reasons for this could include negative beliefs and low expectations of these children and/or the challenges inherent in attempting to elicit their views and experiences due to the lack of a shared (spoken) language. There is little work delineating the most effective ways to access these children's communicative behaviours across learning contexts and to determine how their communicative attempts are interpreted and responded to by the people who know them well. Previous studies have been unable to capture the evolving, dynamic relationships between a child and his or her communicative partner as it occurs in their day-to-day lives. This study aimed to fill this gap.

RESEARCH AIMS

The current study examined the utility of a combination of observational tools to understand the extent to which three children with severe-to-profound intellectual disabilities and emerging language skills were able to express themselves and the extent and nature of adult support they received across a given day in their school.

RESEARCH METHODS

Participants

Three children (Evie, Leah, Adam) enrolled in three different residential special schools in England took part. Adam (age 8) had a diagnosis of autism and was described as having severe learning difficulties. Leah and Evie (ages 11 and 13) were described as having profound learning difficulties. All three young people presented with complex communication needs.

Procedure

A set of tools designed to detail the nature and extent of children's communicative acts and the supports used by the adults working with them were implemented. These tools were used throughout the day during different activities and interactions with different adults and across settings for each participant and their communication partners.

Ethnographic methods

- Unstructured interactions with participants, conversations with those around them, and at times, joining in the activities to capture a 'day in the life' of the young person.

Structured observation

- Structured time-sampling was used to simultaneously record child-initiated and adult-initiated communication within discrete 60-s intervals for the duration of a single activity.

- The researcher coded the presence of child-initiated or adult-initiated communication within the 60-s interval, whether it elicited a response from the adult or child, and whether the bid for interaction led to brief reciprocal communication.

Observational checklists

- Once a single activity was completed, the researcher completed four criterion-referenced observational checklists derived from the Social Communication, Emotional Regulation and Transactional Support (SCERTS) framework, an evidence based framework with the aim of improving some of the core difficulties associated with autism spectrum conditions.

  - Social-Emotional Growth Indicators checklist.

  - Expression of Intentions and Emotions worksheet.

  - Interpersonal Support checklist.

  - Learning Support checklist.

RESEARCH FINDINGS

- Each participant illustrated various ways to make their intentions known e.g. eye gaze, facial expression, simple motor actions, crying, reaching, pushing away, showing, nodding, and vocalisations. None of the children demonstrated bids for shared attention on objects, actions or events.

- The adults supporting them recognised the majority of participants' bids for interaction.

- Adults were observed to use a wide range of interpersonal and learning supports across all three children.

- Frequency of communicative acts depended on the type of activity and communicative partner.

- Children's rates of bids for communication were low (ranging from 0.17 to 0.33 per minute).

- Observations revealed marked inconsistences in the extent to which children's bids for interactions developed into a reciprocal exchange. Evie's grandmother and Adam's teacher developed 70% and 67% of children's communicative bids into a longer communicative exchange with several turn-taking sequences, whereas Leah and Evie's staff teams achieved only 8% and 4% respectively.

- Reciprocal interactions developed less often when adults initiated bids than when children initiated bids.

IMPLICATIONF FOR PRACTICE
(by the authors)

- Understanding how children can be supported to engage in reciprocal interaction is important because these interactions play a critical role in the development of expressive language.

- When children initiate bids for interaction this may set the pace and tone for the adult to attune and respond appropriately, making reciprocal interactions more likely to develop.

- Adults play an important role in supporting children's communicative bids via flexibly adjusting their behaviour (interpersonal supports) and aspects of the environment (learning supports).

- The adult's familiarity with the child and/or their level of experience/expertise may impact the interpersonal and learning supports used and the frequency of reciprocal interactions.

- Future research should record adults' professional experience and their self-efficacy with regard to enabling children to communicate through social or environmental adaptations to examine whether these factors influence children's communication exchanges.

- The methods used in this study could be used as a reflective tool for practitioners to recognise the distinctive communicative acts of these children, to identify the way they manifest socioemotional well-being across the day, and to set individualised goals to increase engagement.

- The use of the SCERTS checklists may be one way for educators to identify opportunities to support the child's communication and to identify improvements in the adult's interpersonal and learning supports across multiple time points. This would allow educators to build an individualised evidence base of support strategies for each child during specific activities and enable them to understand better which specific practices and support strategies are of benefit to individual learners.

- Two children in this study had complex physical needs that may have prevented them from making, or from a communicative partner noticing, certain distal bids for communication relative to children with less severe difficulties.

- The importance of observing children across multiple activities, days and different communicative partners is highlighted as children with such complex difficulties often vary considerably in their behaviour and emotional well-being across days/contexts.

Full Reference

Greathead, S., Yates, R., Hill, V., Kenny, L., Croydon, A. and Pellicano, E. (2016). Supporting Children with Severe-to-Profound Learning Difficulties and Complex Communication Needs to Make their Views Known: Observation Tools and Methods. *Topics in Language Disorders,* 36(3), p. 217-244.

IMPROVING SOCIAL SKILLS IN ADOLESCENTS AND ADULTS WITH AUTISM AND SEVERE TO PROFOUND INTELLECTUAL DISABILITY: A REVIEW OF THE LITERATURE

BACKGROUND

Up to 40% of individuals with autism experience intellectual disability (ID) in the severe to profound range (S/PID). While social skills intervention should start as early as possible, targeting social skills remains important across the lifespan. Social skills can be split into two major categories; 'positive behaviours' and 'challenging behaviours'. Positive social behaviours are verbal or nonverbal social and communicative behaviours that indicate social interest or provide appropriate social initiations or responses in specific situations e.g. smiling at others. Challenging social behaviours are verbal and nonverbal behaviours that are disruptive, isolative or otherwise interfere with the ability of an individual to engage in positive and appropriate social interactions with others. A significant body of research has addressed the treatment of challenging behaviours in individuals with ASD and S/PID. Very little research has been devoted to the development and testing of interventions for improving positive social skills in adolescents and adults with ASD and S/PID.

RESEARCH AIMS

The purpose of the review is to (1) review the existing research on improving social skills among individuals with ASD and S/PID; (2) point out gaps and needs in existing research; (3) highlight important clinical considerations for social interventions in this population; and (4) propose future directions for addressing the social needs of this population.

RESEARCH METHODS

Searches of several academic databases were carried out. Additional articles were identified using reference lists of the articles located during these searches. Included articles included (1) those which reported on participants being at least an adolescent/adult (age 12+) with ASD and S/PID and (2) described interventions aimed at increasing positive social behaviours or measured positive social behaviours as outcomes.

RESEARCH FINDINGS

Seventeen studies were identified. These were grouped into five categories based on similarity of treatment methods.

Video modelling

Video modelling interventions involve having an individual with ASD watch a video of an adult, peer or him/herself perform a behaviour correctly, in hopes that he/she will begin to spontaneously perform the observed behaviour after viewing it on video. One study was identified in this category. This study suggested that video modelling may be effective for youths with ASD and S/PID; however the procedure was only effective for two adolescents involved (out of a total of seven). Video modelling should be further investigated to determine if it can improve social skills in youth and adults with ASD and S/PID.

Developmental/relationship-based interventions

Developmental/relationship-based interventions are based on a model of early parent-infant interactions with the therapist using a number of behaviours characteristic of mothers' behaviours towards their infants. An example of such an intervention is 'intensive interaction' which is designed specifically for promoting social interactions and engagement in non-verbal individuals with severe difficulties in learning and relating to others. Two articles were identified

in this category. Intensive interaction was found to have a positive impact on a variety of social behaviours. One study noted rapid effects within a single treatment session. More research, particularly in the form of controlled studies, is needed to confirm the utility of intensive interaction with autism.

Peer-mediated interventions

Peer-mediated interventions involve teaching typically developing (TD) peers strategies for interacting with individuals with ASD. Three articles were identified in this category. These studies suggested that trained peers, including peers with disabilities, can serve as effective teaching and interaction partners for specific social and communication tasks. There was some evidence that skills learned in these settings may generalise to untrained peers and settings.

Behavioural interventions

Most behavioural interventions have a number of components in common. First, behavioural interventions provide a prompt (a verbal, physical or visual cue) for the individual to perform a specific behaviour. If the behaviour is performed correctly, a tangible (e.g. food/object) or social (e.g. praise) reinforcer is given. If the behaviour is not performed correctly, the reinforcer is withheld and the individual may be given corrective guidance or assistance with performing the desired behaviour. Six studies were identified in this category. Overall, these studies suggest that structured behavioural training procedures can increase appropriate social initiations and responses. More research is needed to examine the generalisation of skills and the effectiveness of behavioural procedures for teaching nonverbal social behaviours which are likely to be more appropriate for individuals with profound ID or who do not use verbal language.

Structured teaching

Structured teaching involves developing an individualised educational plan which builds on the student's strengths and designing the teaching environment in order to de-emphasise the need to rely on areas of weakness e.g. verbal comprehension, during learning activities. Five studies were identified in this category. They suggested that structured teaching, and the TEACCH programme in particular may have positive effects on a number of positive social behaviours. Additional studies, particularly those employing control groups with random assignment or single-subject designs in order to control for nonspecific factors are important to further investigate the effectiveness of the TEACCH programme.

Overall conclusions

Social skills may be amenable to treatment in adolescents and adults with ASD and S/PID. It is not possible to recommend a specific treatment package on the basis of this review. The literature suffers from weaknesses in measurement and research design that need to be addressed to confirm the utility of these interventions for this population. A next step in treatment development would be further manualisation and protocol development to enable replication of these single-subject findings on a larger scale.

A developmental perspective on intervention development is recommended. All of the major intervention types described and researched for this population have been developed for or based on the interaction styles of younger children. Adapting these interventions may be more fruitful than attempting to adapt interventions for higher-functioning youth or adults with ASD as many individuals with ASD and S/PID do not yet have the prerequisite skills that are required to learn more complex social skills. Early childhood interventions should be adapted sensitively to ensure that the skills targeted, and the contexts in which they are targeted, are important treatment goals for this population.

IMPLICATIONS FOR PRACTICE
(by the authors)

Researchers:

- Treatment targets: More research is needed regarding what specific social behaviours are most important for youth and adults with ASD and S/PID.

- Interaction partners: Future studies should examine the effects of interventions with different interaction partners, being mindful of what skills may be best targeted with particular interaction partners.

- Outcome measurement: There is little consistency across studies regarding how to measure change in social skills. Future studies should attempt to use reliable and valid assessment tools that measure the social behaviours most meaningful for individuals with severe disabilities.

- Dissemination: This population is likely to receive the bulk of their services in schools, structured day-treatment programmes or residential treatment facilities. In order to be useful, treatments must fit into existing models

of service delivery both practically and ideologically. Community partners should be involved in intervention development from the beginning.

Clinicians:

- Treatment targets: An examination of what social skills are most likely to promote positive interactions, less restrictive placements, and more community integration may help guide intervention providers in choosing meaningful social goals. The identification of social behaviours that lead to improvements in staff-client relationships would be beneficial as interventions in these areas may influence staff's feelings of competence and reduce staff burnout.

- Interaction partners: The educational and residential setting of individuals is likely to directly impact choice of interaction partners.

- Outcome measurement: It is crucial that the opinions of the individual with the disability are taken into consideration to the extent possible. This may be achieved by measuring expression of positive or negative affect or other nonverbal behaviours indicating a desire to continue or discontinue an interaction, or by using preference assessment procedures to determine whether the individual's attitudes toward or preferences for social activities have changed as a result of the intervention.

Full Reference

Walton, K. M. and Ingersoll, B. R. (2013). Improving Social Skills in Adolescents and Adults with Autism and Severe to Profound Intellectual Disability: A Review of the Literature. *Journal of Autism and Developmental Disorders,* 43, p. 594-615.

USING IPADS TO TEACH COMMUNICATION SKILLS OF STUDENTS WITH AUTISM

BACKGROUND

Many young people with autism spectrum disorders (ASD) who have limited functional speech rely upon pointing, gazing and facial expressions to communicate their wants and needs to parents, teachers and peers. Augmentative and Alternative Communication (AAC) approaches which use pictures, photographs and symbols can be used with these young people to enable them to communicate, whereby they can point or touch the required picture or item. As many young people with ASD have proficient visual processing skills and a desire for predictability the use of visual images and symbols is thought to be more effective than speech or manual signs in teaching new language.

An AAC can also be used as a speech-generating device (SGD). When the young person touches the required image, the associated audible word is expressed. Initially the SGD can be programmed with simple audible cues and the complexity can be increased as the young person becomes more competent in its use. More empirical studies using an iPad as an SGD are required to assess the technology and applications available.

Apple apps such as Proloquo2go, MyTalk and SonoFlex are examples of high-tech AAC systems. This study uses SonoFlex to teach the young people involved communication skills.

RESEARCH AIMS

The aim of this research was to explore the effectiveness of iPads when teaching spontaneous functional communication across school settings (the classroom and less structured times for example break and lunch) to young people with ASD, with a decreasing number of prompts from supporting adults. This study was conducted over a six-week period.

RESEARCH METHODS

Three ten-year-old children (one female and two males) who had a diagnosis of ASD and had also been diagnosed with limited functional speech from the age of four were involved in the study. Each of the three students had an Individual Education Plan (IEP) which incorporated goals in relation to using a SGD to communicate basic wants and needs and to respond to others. Vineland Adaptive Behaviour Scales (2nd Edition, 2005) and Wechsler Intelligence Scale for Children (4th edition, 2003) were conducted prior to commencement of this study. The research questions used in this study were:

(1) By using an iPad will the participants' use of expressive communication increase?

(2) Will the spontaneous communication of the participants increase with their teacher and peers through the use of least-to-most prompting?

RESEARCH FINDINGS

The authors found that the three-young people who participated all demonstrated an increase in their ability to indicate their initial requests, by touching the icon for the SonoFlex App on the iPad with a reduced number of prompts, over the six-week period. When comparing the results for responses to questions and making social comments the difficulties which young people with ASD encounter in relation to expressive language is highlighted, as the former is more prevalent than the latter. Making a request is more likely to be directly beneficial to the child if they get access to the item they are seeking. Thus, it is suggested that items which the young person prefers (child-preferred stimuli) are used while teaching the use of the AAC/SGD.

It is also recommended that the interactions between the teacher and student across several settings are regular to encourage the young person's initiation for communication and also to generalise the skills learnt.

The participants were also assessed in their ability to respond to the teacher's questions during academic lessons, by perusing the words available and touching the correct word on the AAC. Two of the participants were observed to respond to the teacher independently (without prompting) during intervention. The other participant obtained numerical scores. (See the table outlining the least-to-most prompting hierarchy).

Level of Prompts	Scores	Examples
Independent	5	The student initiates a communication without any help. This is considered a non-prompted communication.
Verbal	4	The student is given verbal directives such as, "Chose a button." or "Do you want 'x' or 'y'?" or, "Tell Samantha it's your turn".
Gesture	3	Pointing to the specific area that the student should be looking at to make a communication attempt.
Model	2	Select the correct button and give the students the opportunity to select the button by themselves.

Level of Prompts	Scores	Examples
Physical	1	Using a hand-over-hand process, guide the student to make the correct communication. Provide an opportunity for the students to make the selection by themselves.
Not Communicative	0	Student was not attentive to instruction and/or showed unwillingness to communication with the iPad.

In relation to making social comments, it was observed during the intervention that two of the participants were able to reach independence occasionally and the third participant obtained numerical scores. All of the participants made more comments during unstructured times of the day than in class, for example participant one (10 in class, 46 during recess), participant two (10 in class, 58 during recess) and participant three (9 in class, 60 during recess). This would indicate that there are more opportunities to make social comments while playing games, for example, during unstructured times of the school day rather than in class. The authors also suggest that it is therefore important that young people who find social communication challenging be given many opportunities to participate in school activities outside the classroom to facilitate in the learning of communication skills and provide opportunities to engage with their peers.

The study also found that through the use of the SonoFlex App not only did the participants increase in their ability to respond to their teacher, but it also offered the opportunity for the young people to develop new social communication skills during unstructured times in the school day. As the iPad is a portable device it also affords the young people with ASD the opportunity to engage with their peers (those with ASD and typically developing peers) in many different settings and make friends, which is often difficult especially for those with limited speech.

IMPLICATIONS FOR PRACTICE
(by the authors)

- iPads with appropriate applications are a less expensive alternative to AAC devices on the market, which can enhance or substitute natural speech for those with little or no functional speech.

- Many families already possess an iPad which could be utilised by a young person with limited speech to facilitate more effective communication with their parents and other family members, in addition to teachers and peers in school.

Full Reference:
Xin, J. F. and Leonard, D.A. (2015). Using iPads to Teach Communication Skills of Students with Autism. *Journal of Autism and Developmental Disorders,* 45, p. 4154 – 4164.

COMMUNICATION INTERVENTIONS FOR MINIMALLY VERBAL CHILDREN WITH AUTISM: A SEQUENTIAL MULTIPLE ASSIGNMENT RANDOMIZED TRIAL

BACKGROUND

Communication impairment is a core deficit in children diagnosed with autism. Alternative communication methods such as picture symbol systems or speech-generating devices can be used to support and encourage communication in minimally verbal children with autism.

The authors of this study tested the effectiveness of speech-generating devices with the addition of two communication-focused and evidence-based early interventions for preschool children—JASPER (Joint Attention Symbolic Play Engagement and Regulation) and EMT (Enhanced Milieu Teaching). Both JASPER and EMT have shown efficacy in preschool-aged, minimally verbal children with autism.

- JASPER is a naturalistic behavioural intervention focused on the development of paralinguistic gestures (joint attention, requesting) and play skills within the context of play-based interactions as a means to increase joint engagement between an adult and child with autism.

- EMT is a naturalistic behavioural intervention that uses responsive interaction and systematic modelling and prompting to promote spontaneous, functional spoken language.

RESEARCH AIMS

The primary aim was to examine the effect of blending speech-generating devices with JASPER and EMT versus JASPER and EMT alone. A secondary aim was to compare outcomes across the three interventions; speech-generating devices, JASPER and EMT.

RESEARCH METHODS

A total of 61 minimally verbal children with autism, aged five to eight years, were randomised into two intervention groups. One group received JASPER and EMT with a speech-generating device, the other group received JASPER and EMT only. The intervention consisted of two stages. In stage one, all children received two sessions per week for three months. Stage two intervention was adapted (by increased sessions or adding the speech-generating device) based on the child's early response for a total of three months. The primary outcome was the total number of spontaneous communicative utterances; secondary measures were the total number of novel words and total comments from a natural language sample.

RESEARCH FINDINGS

This study found that:

- Children showed significant gains in spontaneous communication in a short period of time in a relatively low-intensity developmental and behaviourally based intervention of two to three hours per week.

- Children made improvements in spontaneous communicative utterances, novel words and comments using the blended behavioural intervention that involved including a speech-generating device, JASPER and EMT as opposed to spoken words alone.

- Using a speech-generating device, JASPER and EMT, and intensifying the same for children who were slow responders lead to better post treatment outcomes.

IMPLICATIONS FOR PRACTICE
(by the authors)

- There is much more to be learnt about effective communication intervention for this population – it is suggested that future studies should test adaptive interventions in an effort to understand what progress in spoken communication is possible in children with autism.
- Blending interventions may benefit communication skills.
- Education and health professionals should individualise interventions targeting communication for the child with communication difficulties.
- Speech-generating devices can be used to successfully support communication and speech with children with autism.

Full Reference

Kasari, C., Kaiser, A., Goods, K., Nietfield, J., Mathy, P., Landa, R., Murphy, S. and Almirall, D. (2014). Communication Interventions for Minimally Verbal Children with Autism: Sequential Multiple Assignment Randomized Trial. *Journal of the American Academy of Child and Adolescent Psychiatry,* 53(6), p. 635-646.

A RANDOMIZED TRIAL COMPARISON OF THE EFFECTS OF VERBAL AND PICTORIAL NATURALISTIC COMMUNICATION STRATEGIES ON SPOKEN LANGUAGE FOR YOUNG CHILDREN WITH AUTISM

BACKGROUND

The authors of this study drew on research that identified that achieving spoken language by age five to six years was associated with better long-term outcomes for a child with autism. They also acknowledged that there has been recent emphasis on the importance of early intervention (i.e. before the age of four years) in helping children with autism to acquire spoken language, and found that although different treatment models have been developed and separately empirically validated, few have been directly compared in a controlled study.

This paper details the randomly controlled comparison of two models used to teach communication across a six-month period: Pivotal Response Training (PRT), a widely used naturalistic behavioural intervention for teaching spoken language and Picture Exchange Communication System (PECS), the most widely used alternative augmentative communication system. The primary difference between both are that PRT uses verbal strategies whereas PECS uses pictorial strategies.

RESEARCH AIMS

The aim of this study was to provide a direct comparison of spoken language outcomes for children with autism who had minimal speech through measuring the effectiveness of both the PRT and PECS as models to teach communication.

The aim of the research was to prove the hypotheses that a match in interest with typically developing peers could increase interaction, specifically in participation in a recreational activity and have an overall positive effect on the lives of the participants. The measurements for this were achieved by surveys carried out on a weekly basis throughout the programme.

RESEARCH METHODS

Participants were referrals from two university-based autism research programmes who met five criterion including diagnosis of autism, no more than nine intelligible words, no prior treatment involving PECS or PRT, and parental willingness to participate in training and to not use the non-assigned intervention for the duration of the study. Parents were offered training in the non-assigned intervention following completion of the study. Thirty-nine children (34 male, 5 female) aged between 20 and 45 months participated, and all children had a primary caregiver participate in the parent training. The children were randomly assigned to PRT or PECS using a stratified randomisation procedure based on word use, age and cognitive functioning. For every two children assessed and matched on all variables, one was randomly assigned to either PRT or PECS and vice-versa: 20 children were in PRT and 19 in PECS. This study lasted a total of 23 weeks, was carried out in both home and laboratory, and was based on the respective intervention manual. Undergraduate therapists worked with the children and doctoral students with the parents; all were experienced in autism and the use of PRT and PECS. Fidelity was maintained through video recordings. Dependent measures were attained at entry, post intervention, and after a three-month follow up during which time no intervention was provided.

RESEARCH FINDINGS

The results of this study suggested that a majority of young, nonverbal or children with limited speech, with autism, will learn to use spoken language at an early age. This was a very promising finding which was consistent with current literature which addresses early intervention. In this study of the 19 children in the PECS groups, twelve mastered requesting and were learning to comment using pictures (five of these children had expressive language age equivalent scores on the MSEL of less than 12 months, indicating the possibility that their complexity of communication was higher when using PECS). Two were responding and attributing; two could request items using a sentence strip; three were starting to discriminate pictures and were not using spoken words to communicate.

Overall however, the authors of this study could not draw any conclusions regarding the relationship between gains in spoken language using either model; one intervention modality was not superior to the other. The authors found that both PRT and PECS resulted in children making similar gains in spoken communication although with extreme variability in verbal progress across participants. On average, children gained approximately 80 spoken words across the six-month study period. At the final measurement, 78% of children across both models were reported to use at least ten spoken words.

The authors' findings on PECS was in keeping with prior studies: that children often begin to use spoken language once they reach PECS Phase four (refer to user manual).

IMPLICATIONS FOR PRACTICE
(by the authors)

The authors identified three limitations to this study: a no-treatment control group was not included meaning progress may have been developmental rather than the result of either intervention; the study was limited to nonverbal and minimally verbal young autistic children, therefore the results cannot be generalised; and a subset of assessments were conducted by coders who were aware of the intervention condition, which may have threatened the internal validity of the study.

The authors further identified several points for discussion in this study which should be considered in practice:

- Parents in both groups were satisfied with the models and reported progress in their children.

- Parents found PECS to be more difficult to implement in the home. This may be due to the preparation time involved and ensuring the child always had access to the PECS book. This contrasted with PRT where only materials in the natural environment were required.

- Some parents and practitioners were reluctant to recommend models such as PECS for use with a child with autism in case it interfered with the development of spoken language. The authors note that PECS did not inhibit the development of spoken language but that the variability in progress raises questions regarding when to use a model. They hope future research will assist efforts to individualise intervention protocols in this area.

- When this study is compared to the only other direct comparison of PECS and a naturalistic behavioural verbally-based model, it contrasts.

- Research focusing on each child's unique response to interventions such as PRT and PECS will inform early intervention aimed at targeting communication in young non/minimally-verbal children, and allow practitioners to deliver more tailored interventions.

Full Reference

Schreibman, L. and Stahmer, A.C. (2014). A Randomized Trial Comparison of the Effects of Verbal and Pictorial Naturalistic Communication Strategies on Spoken Language for Young Children with Autism. Journal of Autism and Developmental Disorders, 44(5), p. 1244-1251.
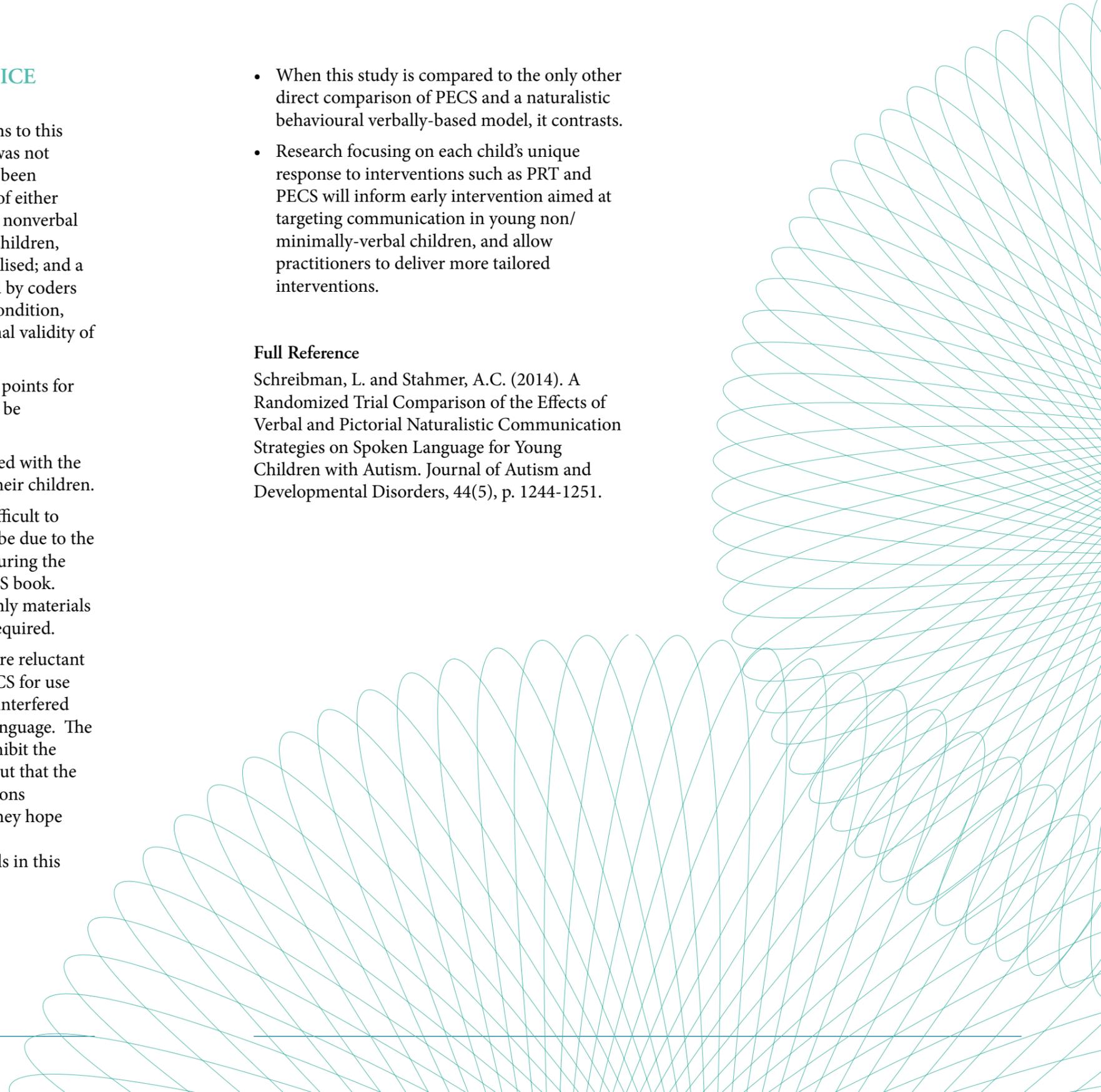
CONCLUSION

Communication involves a minimum of two people and it is learned across a range of environments not just in a teaching environment. Those of us who live and work with people with autism should understand our own roles in helping to foster and build communicative skills and to provide an environment where all types of communication are encouraged and understood.

Adults, peers, siblings, friends can all help foster communication skills. It is important to be able to recognise communicative intent and to respond to communicative intent. In this way we can help build confidence in using communication.

Parents, carers, siblings, peers and others in the environment are the most important factors in fostering communication. In addition to this there is also a role for technology and assistive and augmentative aides.

The summaries included in the Bulletin address the effectiveness of iPad technology and how the use of tablets and personal devices have made augmented communication more accessible for parents and families. The use of personal devices is diverse and Sue Sheridan provides practical examples of how they can not only address communicative skills but also social skills and engagement.

The overall message from the summaries included is that people and the environment, technology and autism specific approaches are all important in fostering communication.

YOUR OPINION

The Centre trusts that you have found this Research Bulletin informative.
It would be appreciated if you would take a few minutes to provide the Centre
with feedback in relation to this bulletin by clicking on the survey link below.

**Communication Strategies to Support Children
and Young People with Autism and Severe
and Profound Learning Difficulties**

CENTRE FOR AUTISM

MIDDLETOWN