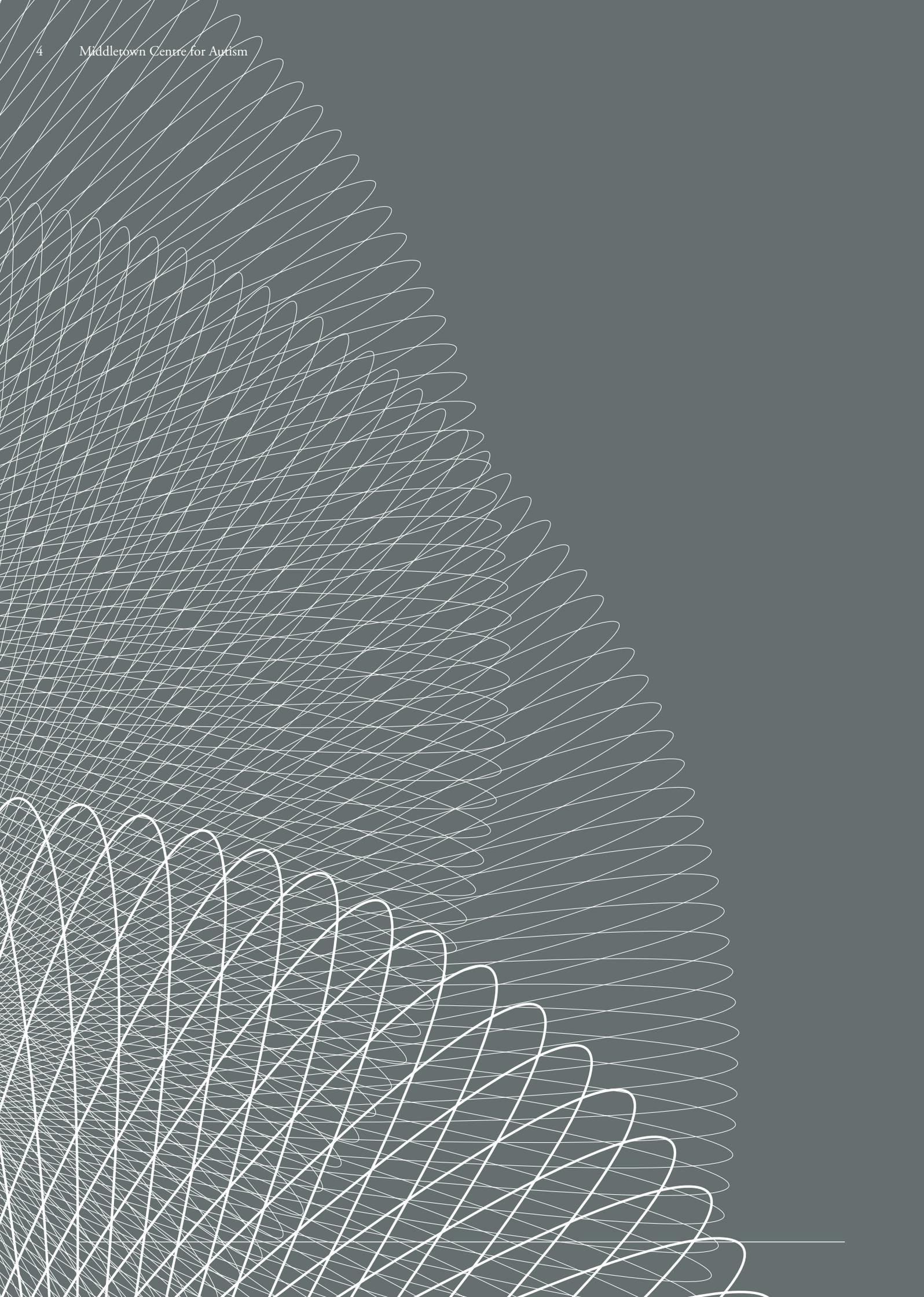


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INTRODUCTION

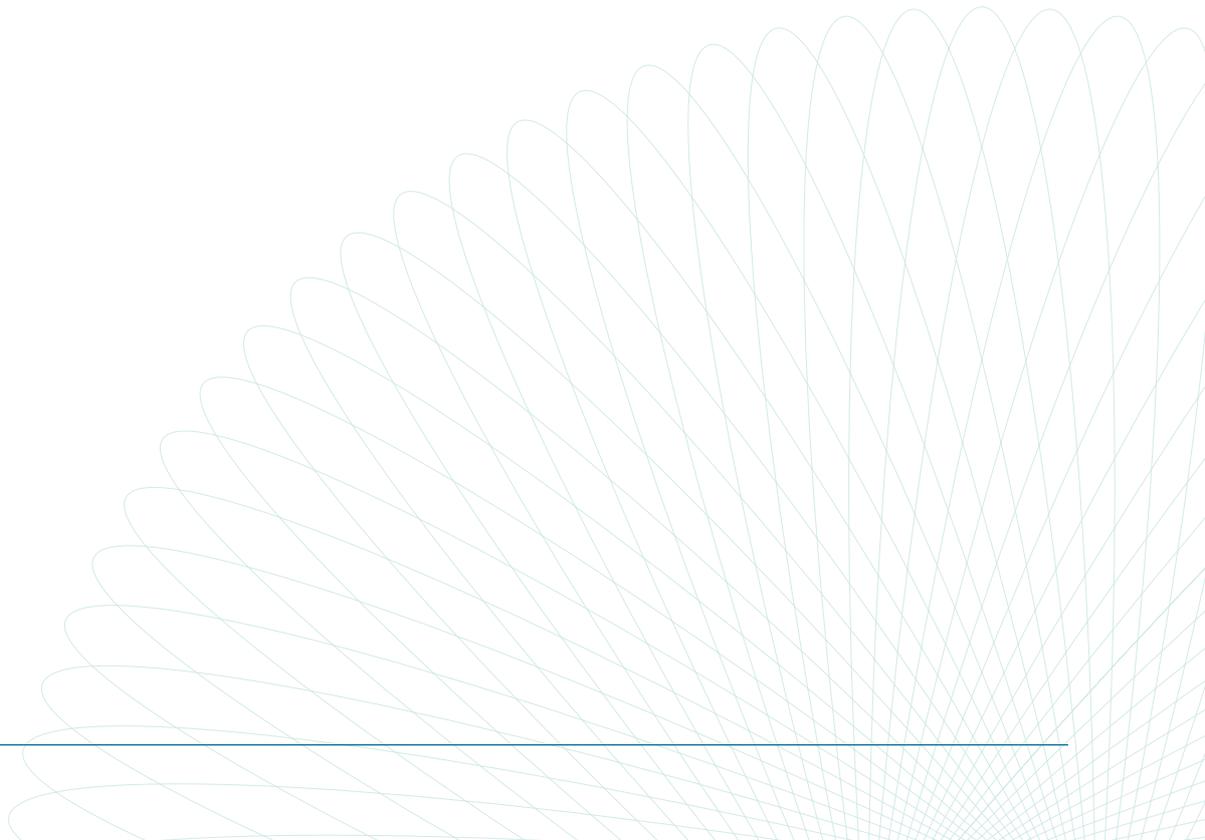
This is the twenty first Research Bulletin produced by Middletown Centre for Autism and it provides summaries of twelve articles spanning from 2010-2016.

The Bulletin commences with an interview with Professor Connie Kasari.

Connie Kasari PhD is a Professor at University of California Los Angeles (UCLA) with joint appointments in Human Development and Psychology and in Psychiatry. She is the Principal Investigator for several multi-site research programmes and a founding member of the Centre for Autism Research and Treatment at UCLA. She has been actively involved in autism research for the past 30 years, leading projects under the CPEA, STAART, and Autism Centres of Excellence programmes from National Institutes

of Health (NIH). Since 1990, she has been on the faculty at UCLA where she teaches both graduate and undergraduate courses and has been the primary advisor to more than 40 PhD students. Dr Kasari has a wide range of publications on topics related to social, emotional, and communication development and intervention in autism. She is on the science advisory board of the Autism Speaks Foundation, and regularly presents to both academic and practitioner audiences locally, nationally and internationally.

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.



INTERVIEW WITH PROFESSOR CONNIE KASARI

1. Why is play different for children with autism?

Young typically developing children are driven to play; play is fun, creative, and challenging. Children learn about the world through play, and can engage in it for hours. Children progress from learning how objects/toys work in a functional way (e.g. the car moves on the track, the doll sits on the chair) to creative and imaginative play (e.g. the doll can drive the car on the track, the car can run into an imaginary garage, or a garage can be made of materials that are not like a garage at all). Indeed, the developmental progression of play skills over the first few years of life has been well studied, and well defined.

Children also use play to engage with other children or with adults; play is social. The social aspects of play from watching other children play (on-looker) to coordinated and symbolic, socio-dramatic play with peers has likewise been well studied and defined in the typical literature. In contrast, children with Autism Spectrum Disorder (ASD) have difficulty with the symbolic aspects of play, often failing to use objects or toys in creative, pretend ways. Instead, children often use toys non-functionally, for example, spinning the wheels of a car, peering at the car wheels on the edge of the table as they move it along, or using objects in other repetitive ways without clear functional use. Or if they do play with objects they may play alone with them, not wanting to have another person engage in play with them.

Some children also seem not to get much pleasure from playing, or don't seem to know how to 'play'. It really is not clear why this is the case, or why explicit teaching is sometimes needed to help children learn to play whereas typically developing children naturally are interested in play, particularly with others.

2. Why is it important for us to teach children with autism to play? How can we do this?

Play is universal among children around the world. Children play to learn about how things work, and about relationships with others. Play can be an important window into how children think about things, and a vehicle for teaching them new things. Sometimes we hear from parents how their child with ASD does not 'enjoy playing'. It may be that play has been approached as 'work' - a task to be done. This is all the more reason to help the child learn to play, as play can bring hours of pleasure to children as well as to connect them to others. In this sense, our goals for children with ASD should be no different from those of typically developing children.

We wrote an article a few years ago entitled, 'Pretending to play or playing to pretend?' (Kasari, Chang, Patterson, *American Journal of Play*, 6, 2013). The premise was that how we teach children to play matters. Play is not a set of skills to be mastered like a task or 'work' - as some therapies teach play. Although we can teach children the mechanics of play (such as behaviour that looks like pretend, -e.g. feeding a sponge to a doll as if the sponge is food) the act may not really be play or symbolic. If the child is not developmentally ready for symbolic play, or the act to be taught is not the child's idea or not 'fun', it is unlikely to be incorporated into the child's repertoire or generalised across other contexts. As we noted in our article, pretend play in particular is marked by positive affect, intrinsic motivation, flexibility and non-literality with toys. 'By its very nature, pretend play is not rigid, and it cannot be demanded by others or approached as a task to be done.' (pg. 125). Therefore, how we teach matters.

One early intervention approach to teaching play skills is based on JASPER (Joint Attention, Symbolic Play, Engagement and Regulation). This approach specifically focuses on play in children with ASD, and uses play in engagement with others as a means to teach additional skills such as joint attention and language. It is at its core a developmental approach that also incorporates both behavioural and developmental strategies for improving play, social communication, engagement and behaviour regulation.

We approach teaching play in JASPER by first assessing the child's play skills, and then we use the child's current play level to create play routines with the child that are flexible and expansive. It is through play that we can engage children, maintain this engagement and teach other skills such as social communicative gestures and spoken or augmented (via iPad and speech software) language.

While several intervention approaches use play to engage children, they do not always assess play carefully to select teaching targets, or implement strategies to help children flexibly play as well as teach higher-level play skills. In fact, many approaches direct the therapist or parent to just 'play' with the child using whatever toys the child likes. However, this can be complicated because sometimes children choose toys that they want to play with alone, not with someone else, and they may be toys they want to use repetitively or only in certain ways. The child's choice may be too simple for his or her developmental level, such as mechanical toys that light up or make sound by pushing a button, or involve bubbles or sensory materials, such as play dough. Therefore, information about the child's play level as well as interests helps the parent or therapist make an informed decision about the best materials to use to teach play.

Another reason to select toys and play routines at the child's developmental level is that having to play at a level too advanced increases cognitive load whereas too low of a developmental level is boring. If selected at a comfortable developmental level they may be better able to focus on learning and use social communication gestures and language.

3. How can learning play skills support those with autism to learn more effectively?

Learning to play affords children a way to interact with others. Play can provide the context and the topic. When children engage effectively with others they also have opportunities to learn from these interactions. For example, children can test out their own ideas in play and they can learn from others' ideas. Play also encourages creativity, cooperation and flexibility, skills that are important to later learning.

Some evidence also suggests that there are downstream developmental benefits of learning to play (Kasari et al, 2012). In a sample of children with ASD who were first assessed during the preschool years and then again when they were 8-10 years of age, play diversity (demonstration of different play acts within a play level) predicted their later cognitive abilities. Their preschool level of play was associated with their later spoken language. Thus, targeting play diversity and play level in early interventions may be important for later developmental abilities of cognition and language.

4. Can technology and tablet based games teach effective play skills?

There may be no substitute for engaging in play with real toys/objects and human social partners. However, the field of technology-based interventions is developing rapidly, and there will likely be programmes that in the future may help support or augment children's ability to play and communicate. To date, however, I am not aware of programmes that are as effective as current developmental/behavioural interventions, such as JASPER.

5. Can play develop social communication skills?

The answer is yes in as much as play becomes the topic of the interaction, and strategies are used within play episodes to teach gestures, social skills and language. Certainly in JASPER we use play and engagement as a means to teach social communication gestures and words. In more than a half dozen randomised controlled trials, we find consistent effects of the treatment; increased play skills and increased social communication skills.

6. How can we support social development through play?

Social development includes joint attention, play, and engagement with others, especially when children are young (preschoolers). A focus on these developmental areas helps to improve the social relationships that children have with others. When children enter school the expectations change a bit. Children are more likely engaging with peers. Play, joint attention and engagement remain important but they change in that children are often not working 1:1 with a therapist on play but rather engaging with peers on the playground. Toys may be less available and games with rules and playground structures more available. We have developed an intervention that focuses

on engagement during the playground recess times, called remaking recess. We taught paraprofessional assistants on the playground strategies for including all children in games or activities to increase peer participation of children with ASD (Kretzmann, Shih & Kasari, 2014). In a randomised controlled study conducted at elementary schools, children in the remaking recess group improved their peer engagement on the playground over children who were receiving school inclusion services only. Therefore, even in the school context and at older ages, play often needs some direct instruction for children with ASD.

7. As parents and/or professionals what can we do to help children engage in play activities?

First we can think about the environmental support for play. Are there materials available that are interesting, motivating and developmentally appropriate? Is there a supportive adult or peers? Some children will need direct instruction, others simply require an adjustment in the environment that provides opportunities for them to engage with others in play.

In JASPER we help parents and/or therapists with strategies to develop and maintain play routines. For a child unengaged with toys or people, it is important to find a toy or activity at the child's developmental level of play (whether simple play, such as putting cars down a ramp or symbolic that may involve figurines, vehicles and building structures). Imitating the child's actions with objects, and then modelling when the child does not have an idea what to do are two strategies we use to develop play routines; that is, engagement with objects that are repeated and linked to maintain the child's interest and engagement in play. When a play routine is developed it becomes important to expand these actions so the play

does not become stagnant; we have specific strategies to help the adult accomplish this.

When peers are available, especially in group settings such as school, having games or other activities available becomes critical.

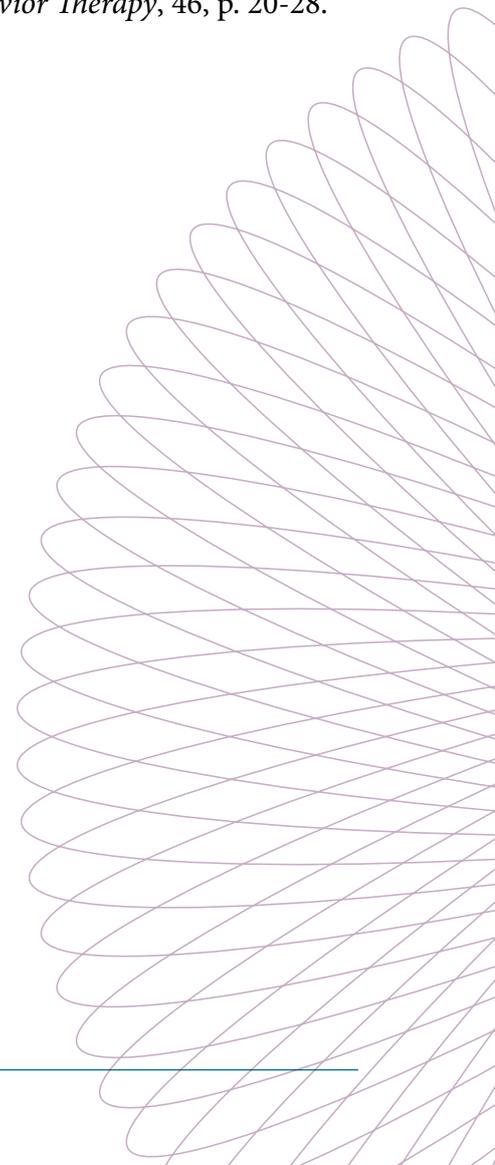
Providing some structure can help children with ASD engage in play more easily than if left to their own devices. Games could include ones like 'red light, green light' or others in which the peers can help the child with ASD by modelling and encouraging their involvement.

8. How can teachers use play as a means to education?

Similar to above, teachers should also use toys and objects that are developmentally appropriate and motivating to teach play. Thinking about what materials are available at the child's developmental level, and what supports are needed for the child to actively engage in play with an adult or with peers is important in improving play goals. However, the play context can be used to teach children many other concepts besides just play skills. For example, preschool teachers often have rotations during the day that include play centres. During play rotations other concepts can also be targeted, such as maths or reading in a play kitchen area, for example. Executive functioning skills of planning and inhibition can be targeted when children play in dyads or small groups with the task to work together to build something (e.g. a pretend castle, or racetrack). Working in small groups or dyads also helps the child learn social skills of cooperation, sharing, prosocial behaviour and problem solving. Thus, play as a context can help to motivate and teach multiple core concepts.

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- Kasari, C., Gulsrud, A., Freeman, S., Paparella, T., and Helleman, G. (2012). Longitudinal Follow-up of children with Autism Receiving Targeted Interventions on Joint Attention and Play. *Journal of the American Academy of Child & Adolescent Psychiatry*, 51(5), p. 487-495.
- Kretzmann, M., Shih, W., Kasari, C (2014). Improving Peer Engagement of Children with Autism on the School Playground: Randomized Controlled Trial. *Behavior Therapy*, 46, p. 20-28.



COGNITIVE DEFICITS AND SYMBOLIC PLAY IN PRESCHOOLERS WITH AUTISM

BACKGROUND

This study investigated symbolic play in 12 children with autism and 12 children with typical development and compared three theories to see which was most related to the noted deficits in pretend play of children with autism:

1. Theory of Mind. Pretend play requires a child to ‘decouple the primary representation from its pretend representation.’ As in the case of taking the banana as a telephone, a child must temporarily give up the idea that banana is a fruit so that he/she can talk on it as though it is a telephone. The ability to decouple is necessary for a child to take certain things as ‘true’ and act accordingly in response to pretend beliefs and inferences.
2. Executive Function Deficit. Pretend play requires a person to disengage (mentally inhibit) from certain facts, to create new scenarios (generativity) and to shift attention.
3. Central Coherence is the ability to focus on both details as well as wholes. People with autism however, appear to have a heightened focus on details rather than wholes. This means that children with autism may process faces or toys as fragments regardless of the play contexts.

RESEARCH AIMS

This study sought to answer two research questions:

1. Do preschoolers with autism demonstrate significantly less symbolic play as compared to their typically developing peers?
2. Which of the three models (Theory of Mind, Executive Function or Central Coherence) are more associated with symbolic play performance in young children with autism?

RESEARCH METHODS

Two groups of 12 children participated in this study. The experimental group included 12 children with a diagnosis of autism, recruited by a licensed psychologist providing services for children with autism. The control group included 12 typically developing children recruited through convenient sampling. The two groups of children were matched on sex, chronological age, non-verbal intelligence and verbal intelligence. Over the course of one hour each of the 24 children included individually completed eight tests with a trained experimenter in a quiet room. The eight tests consisted of the following:

1. Peabody Picture Vocabulary Test – third edition (PPVT-III)
2. Raven’s Coloured Progressive Matrices (RCPM).
3. Sally-and-Anne False-Belief Test.
4. M&M False Belief Test.
5. Block Design.
6. Two-Puzzle Task.
7. Wisconsin Card Sorting Test.
8. Pretend Play (two spontaneous play trials, each 5-min long).

RESEARCH FINDINGS

This study provides evidence that children with autism show deficits in symbolic play, when compared with typically developing peers. In particular, this study found that a lack of theory of mind and weak central coherence seem to be causally related to symbolic play deficits in children with autism.

Difficulties in theory of mind have been linked to symbolic play deficits because children need to simultaneously hold two competing representations in mind to produce symbolic play. This study shows that children with autism have difficulties in understanding other people's perspective which may contribute to their difficulties in producing symbolic play acts.

IMPLICATIONS FOR PRACTICE

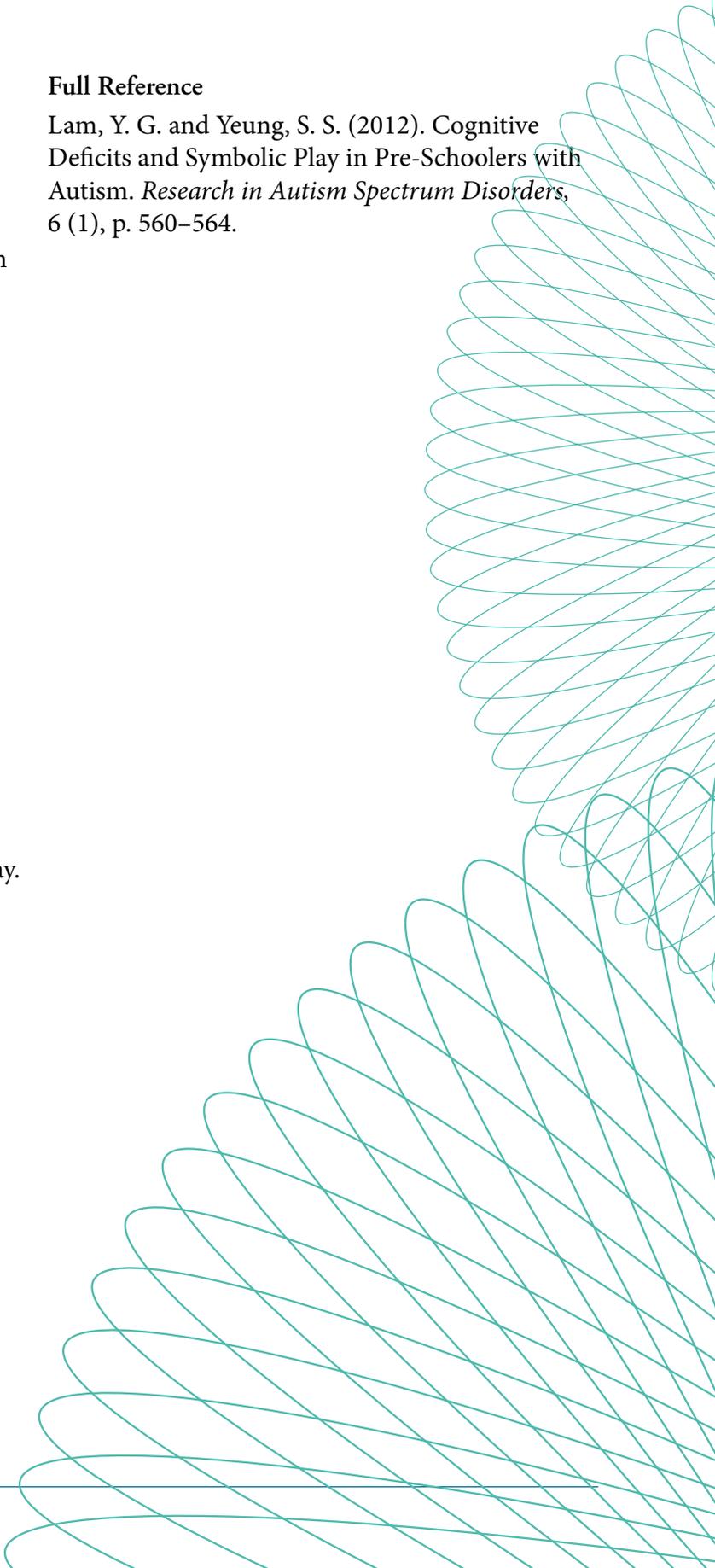
(by the authors)

Play is an important part of child development. Children with autism should be encouraged and supported to play. It may help to:

- Provide opportunities for more structured play.
- Keep instructions simple and clear.
- Be aware of any possible distractions that will affect the individual's performance (e.g. whether acoustic, visual, physical etc).
- Make time to explain play and the play of peers.

Full Reference

Lam, Y. G. and Yeung, S. S. (2012). Cognitive Deficits and Symbolic Play in Pre-Schoolers with Autism. *Research in Autism Spectrum Disorders*, 6 (1), p. 560–564.



PARENT–CHILD INTERACTIONS IN AUTISM: CHARACTERISTICS OF PLAY

BACKGROUND

It is well documented that children with autism have significant difficulties with play and that they often engage with objects in repetitive ways and fail to develop creative and symbolic engagement with objects. The authors of this study, believe these difficulties should give rise to concern as play skills are the foundation for other ‘symbolic’ development areas such as language, emotional, and cognition. It’s long been recognised that children’s play skills can be developed when a more sophisticated partner imitates, models, and prompts their children’s play actions.

The advocacy for using a more experienced other to provide instruction at and just slightly above the child’s level of current performance so as to facilitate the learning of new and emerging skills. Despite the critical significance of parent–child with autism play interactions, the authors found this area under researched.

RESEARCH AIMS

This purpose of this research study was to examine the extent to which parents of children with autism matched and scaffold their child’s play. The study aimed to explore the following hypotheses:

1. Children with autism and typically developing children are expected to play at a higher level in a structured interaction compared to an unstructured interaction with a parent.
2. Within a free-play session with parents, it is expected that typically developing children will initiate more and engage in longer sustained play scenarios (schemes) than children with autism.
3. It is expected that certain specific parent strategies such as imitation and appropriate scaffolding will lead to longer and more connected play interactions.

RESEARCH METHODS

Thirty two children (16 with autism and 16 typically developing) and their parents participated in this study. To recruit, the authors sent fliers and letters describing the study to parents of children attending local preschools and day care centres. The children with autism were recruited from an Autism Evaluation Clinic. All parents were invited to contact the authors if they wanted to participate. The children with autism and the typically developing children were matched on receptive language age, expressive language age, and mental age. Chronological age was significantly different between groups (autism vs typical = 11.8yrs vs 8.8yrs). In the autism group, 14 parents reported they had previously participated in behavioural training and four parents reported their child had participated in a social skills/developmental programme in addition to their classroom and specialised therapy programme. No parent reported that these programmes specifically targeted play skills, although the four parents in the social skills group felt that play was one component of the group. Initially researchers carried out preliminary interviews and administered the ADI-R (Autism Diagnostic Interview–Revised) with the 16 parents of children with autism to confirm diagnosis: all children met criteria. Consequent procedures were the same for all participants; all were invited to a laboratory for two hours to facilitate assessment for the study.

The researchers used a non-standardised structured play assessment to measure spontaneous level of play in a structured situation. Parent(s) were invited to remain in the room or to view from behind a one way mirror while an adult tester interacted with the child for 15–20 minutes. The interaction was video recorded and two undergraduate trained raters, blind to the hypotheses of this study, identified the types and

frequencies of play behaviours.

Using the Developmental Play Assessment (DPA) Instrument Sequence of Categories they labelled, counted and scored the types and frequencies of play for the entire session. Two graduate assistants independently judged the scoring and found it to be accurate.

Researchers provided parents with a standard set of toys and instructed them to 'play with their child as they play with them at home'. The free play interaction was observed and recorded and two trained raters used computer coding to code and score both parent and child sequences of play during ten minutes of free play. The DPA Instrument Sequence of Categories was used to evaluate play acts.

ARTICLES REVIEWED

The authors report that previous research focused on developing play in therapeutic situations with both therapists and parents of children with a variety of disabilities. This paper identifies the following characteristics of effective play interactions: establishing joint engagement, imitating the child's actions on objects, using appropriate developmental prompting, attending to the structure of the environment, providing contingent responsiveness, sensitivity, warmth, nurturance, appropriate levels of stimulation, and predictability. The paper reports that parents facilitate greater child engagement when they maintain the child's attention to various play objects, follow the child's attentional focus, engage responsively, scaffold interactions, and use strategies such as imitation.

It is well documented that autism can impede a child's play skill development; difficulties include maintaining attention to the object while coordinating social engagement therefore the support of a skilled person such as a parent becomes more important. The paper also informs

that parents of children with autism may have more difficulty achieving productive, enjoyable, and interactive play experiences because of the child's limitations in person/object engagement. Children with autism tend to engage in object focused interactions; that is, their attention is wholly focused on the object without involving another person in their play. Greater time in joint engagement (with objects and people) is important for further development of language. It can be very difficult for parents to engage the child in reciprocal, symbolic, turn-taking play episodes without intervention.

RESEARCH FINDINGS

This research study found the following in relation to the author's hypotheses about children's play:

The Structured Play assessment: the children's most frequent spontaneous level of play in a structured situation.

Mean for Child with Autism: 8:1

Mean for Typically Developing Child: 9:1

Level of Play: Child as agent

Level of Play: Single-scheme sequence

Points of Interest:

- Fourteen of 16 children with autism showed they could carry out play that was developmentally higher but they did not show these acts consistently.
- All the typical children showed at least one example of higher level play beyond their identified level of play.

Parent–child free play interaction:

- Both groups of children played with the standard set of toys at approximately the same level as did the parents of the typically developing children.
- The parents of children with autism played about one level higher overall.
- In the autism group, there was no correlation between parents' level of play and the children's level of play.
- In the typically developing group, parent and child play level correlated, thus, when the typically developing child used a higher level of play skill the parent reciprocated and vice-versa.
- Compared to performance on the structured play assessment, all children played at a lower level in the parent–child interaction than they did in the structured play situation.

Parent–child free play interactions were examined to determine which member of the dyad initiated play schemes and which lasted longer. This study found:

- Parents of children with autism initiated significantly more play schemes than parents of typically developing children.
- Both groups of children initiated about the same number of schemes.
- Parents of children with autism had longer lasting parent-initiated schemes than parents of typically developing children.
- Play schemes initiated by typically developing children lasted longer than play schemes initiated by children with autism.

Parent–child free play interactions were examined to ascertain what strategies parents were using. The authors found that all parent strategies could be categorised into three types of acts:

- i) parents suggest
- ii) parents command
- iii) imitation

- Overall, parents of children with autism engaged in more play strategies than parents of typically developing children.
- Repetitive acts were not different between groups.

IMPLICATIONS FOR PRACTICE

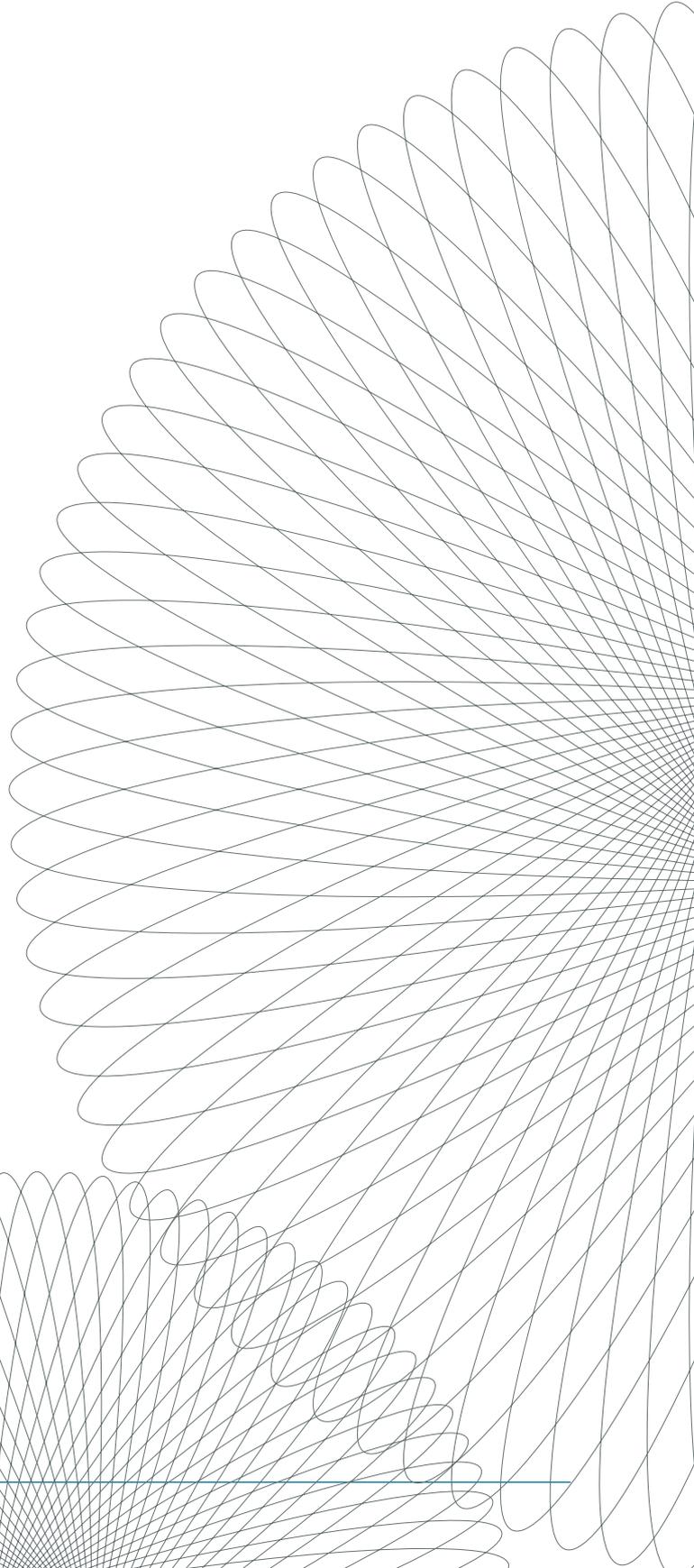
(by the author)

- The play skills of children with autism differ from typically developing children.
- Child engagement is affected by specific interaction strategies.
- Children with autism generally show higher levels of play on structured activities than free play.
- Parents of children with autism experience greater difficulty than parents of typically developing children in assessing and playing at or just above their child's play level.
- When play interactions are commanded or controlled by the adult rather than the child they are usually short in time. When the supportive adult resorts to didactic-oriented teaching or interactions these can reduce sustained play interactions.
- Imitating the child's play resulted in longer play sequence.

- The results of this study suggest that less parent commanding and playing at or just above the child's mastered play level results in longer periods of joint engagement.
- The authors found that playing within the child's zone of development (or just above their mastered play level) results in greater engagement and increased children's play level and diversity of play.

Full Reference

Freeman, S. and Kasari, C. (2013). Parent-Child Interactions in Autism: Characteristics of Play. *Autism*, 17(2), p.147-161.



PRESCHOOL DEPLOYMENT OF EVIDENCE-BASED SOCIAL COMMUNICATION INTERVENTION: JASPER IN THE CLASSROOM

BACKGROUND

There are almost half a million preschool-aged children with a diagnosis of autism spectrum disorder in the United States. The majority of these children are served in public pre-schools where they follow a curriculum based programme. The core social skills which are so important for pupils with autism may have a limited focus within this teaching method. Research based intervention models in this area which address the deficit in core skills are difficult to transfer from 1:1 based university trials to the classroom group situation. Other factors that influence outcomes are restraints within the curriculum, implementation fidelity and whether teachers are able to sustain the practice over time. JASPER (Joint Attention Symbolic Play Engagement Regulation) is the modified intervention model the author chose to use for the purpose of this study. It is based on a blend of developmental as well as behavioural principles.

RESEARCH AIMS

The purpose of this study was to investigate the arrangement of a research developed early intervention model, JASPER, in real world preschool programmes. The study uses the adapted JASPER model as an intervention programme in the classroom. This is the first examination of the implementation of a modified evidence based social communication intervention.

The objective for JASPER sessions in the classroom is to increase joint engagement, diversify and expand play skills, and promote nonverbal and verbal communication. The teacher or other professional learns by instruction to adjust the environmental arrangement, balance modelling and imitation, and expand on language and play routines as needed to promote joint attention and engagement during play.

RESEARCH METHOD

JASPER was adapted for delivery using small group instruction by teachers and assistants in public pre-school classrooms in the United States. Two groups were used; one where the professional received immediate training, (IT), and a second who were waitlisted, (WL), for three months with a one month follow up. The study took place over a five month period using six autism specific schools each with eight pupils, a teacher and one assistant. The pupils in the study were between three and five years old with a diagnosis of autism spectrum disorder. The staff in each case received an eight week programme on the modified JASPER programme rolled out into two 15 minute sessions daily for the first four weeks, with 15 minute sessions twice weekly for the remaining four weeks.

Teachers' implementation of JASPER was assessed throughout the study. Child measures and baseline information were acquired using the Mullen Scales of Early Learning to measure cognitive ability, the Early Social-Communication Scales to assess joint attention and behaviour regulation skills as well as The Structured Play Assessment, SPA. Measures for both child and teacher were collected at three points; entry, exit (after two months) and one month follow up (after three months) for the (IT) group only.

RESEARCH FINDINGS

A high quality JASPER strategy implementation score was demonstrated by the teachers and assistants in the study. This was comparable, by the end of the intervention period, to the university based studies with 1:1 interventions. While most intervention reviews report a reduction in fidelity when interventions developed are moved to the community this study suggests that stakeholders can deliver JASPER with high fidelity in a preschool setting.

Secondly children who received JASPER daily over a period of two months demonstrated significant increases in their initiation of joint attention language, child initiated joint engagement and mean length of language. Thirdly it was reported that the positive effects of the programme were maintained over the follow up which was one month after the study withdrawal.

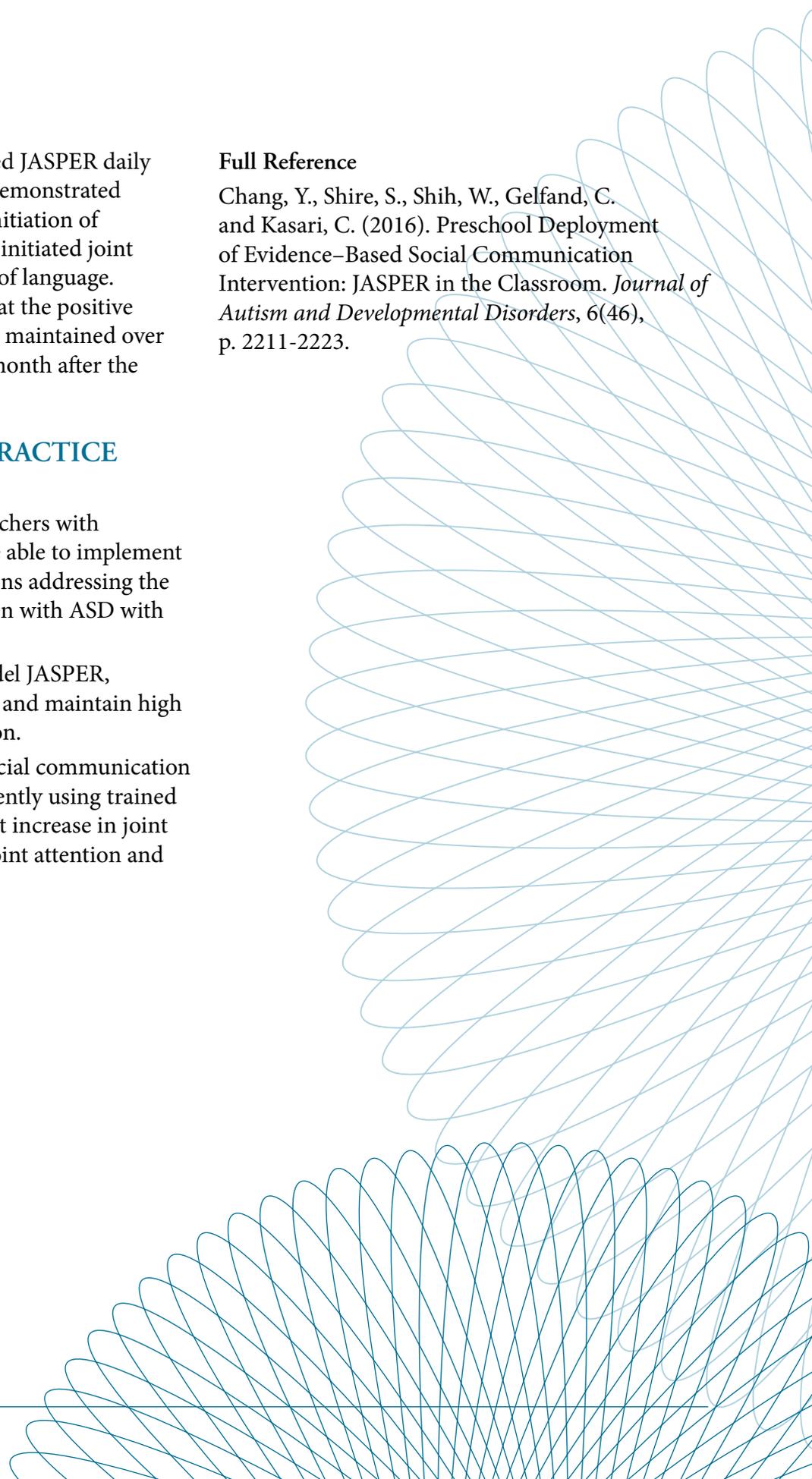
IMPLICATIONS FOR PRACTICE

(by the author)

- The study confirms that teachers with classroom based groups are able to implement evidence-based interventions addressing the core deficits of their children with ASD with significant improvements.
- Using the intervention model JASPER, teachers are able to achieve and maintain high fidelity in its implementation.
- JASPER as a strategy for social communication when implemented consistently using trained staff can produce significant increase in joint engagement, initiation of joint attention and mean length of language.

Full Reference

Chang, Y., Shire, S., Shih, W., Gelfand, C. and Kasari, C. (2016). Preschool Deployment of Evidence-Based Social Communication Intervention: JASPER in the Classroom. *Journal of Autism and Developmental Disorders*, 6(46), p. 2211-2223.



LONGITUDINAL FOLLOW UP OF CHILDREN WITH AUTISM RECEIVING TARGETED INTERVENTIONS ON JOINT ATTENTION AND PLAY

RESEARCH AIM

This study reports on five year follow up data of three to four year old children who participated in an intensive early intervention programme targeting core developmental difficulties. The study examines the long-term effects on cognitive and language outcomes of early interventions which targeted core deficits of joint attention and play skills.

RESEARCH METHOD

The original study recruited 58 children using a randomised controlled trial design. These children met the inclusion criteria of having a diagnosis of autism (on the Autism Diagnostic Interview Revised and the Autism Diagnostic Observation Schedule, ADOS), had no history of seizures or co-occurring conditions and were under five years of age. For the five-year follow up assessments 40 children out of the 58 returned. The children who participated in the follow up study were mostly male (82%) with an average age of eight years, eight months.

The children in the original RCT received 30 hours of behavioural treatment per week as part of the same hospital-based early intervention programme (EIP), these children were randomised to one of three experimental treatment conditions: Joint Attention intervention (JA), Symbolic Play intervention (SP) or the control condition (CO).

Families were re-contacted five years after the original study and attended two visits to UCLA for follow up assessment including the researchers re-administering the ADOS assessment to all 40 children. Other assessments administered included language and cognitive assessments.

RESULTS

The researchers wanted to identify predictors of both cognitive and spoken vocabulary ability so employed a forward stepwise regression, which allowed them to determine which predictors among a large set had the greatest predictive value.

Prediction of spoken vocabulary: a forward hierarchical regression was used to characterise the best predictors of the children who achieved the basal Expressive Vocabulary Test (N=32) score of 2 years, 6 months from those who did not (N=8). Initial play level (PLEVEL) was the only predictive variable. The average play level for the eight children who were not able to achieve scores on the EVT at the five-year point was 3.3 while the average play level of the other 32 children was 6.7.

Prediction of cognition at age eight: the researchers identified functional play types as the only predictor for overall cognitive ability (measured by the Differential Ability Scale, DAS). A one unit increase in functional play types increased the DAS standard score by 2.12.

Prediction of spoken vocabulary at age eight: on average the children gained a standard score of 1.1 in spoken vocabulary per month that they entered the treatment, and they gained a standard score of 2.1 in spoken vocabulary ability per one frequency increase in joint attention initiations. Spoken vocabulary ability increased by 5.8 per increase in play level at baseline. The joint attention treatment group scored on average 12.5 points higher than controls on the language measure, and the symbolic play treatment group scored on average 10.6 points higher on the language measure than the control group. The difference between the treatment groups was non-significant.

IMPLICATIONS FOR PRACTICE

(by the authors)

- The results from this study suggest that children who can demonstrate simple combination play at age three to four were then more equipped to use functional spoken language at age eight. This was compared to children who played with objects indiscriminately, that is mouthing or banging, or with simple discriminations of pushing a pop-up toy.
- The findings in this study support other research suggestions that a significant moderator of language outcomes is the child's ability to demonstrate object 'interest' which reflects an exploratory and functional level of play; examples of functional play would be the child who puts the spoon in their mouth or a comb to their hair.
- One of the variables in this study was functional play types, this refers to the number of different novel child-initiated functional play acts. Analysis of the results in this study suggests that children who presented with more functional play types at baseline obtained better cognitive scores. These findings highlight the significance of object play skills for the cognitive development of children from a young age.
- The authors highlight that play diversity along with a minimum level of play level ability may be critical components in developing cognitive skills; that is play that is beyond indiscriminate and discriminate skills in which children are mouthing, banging toys.
- Longitudinal follow up within a randomised controlled play intervention study is rare. This study determined that there are a wide set of factors predictive of spoken vocabulary in comparison to cognitive outcomes. This research study highlights that beginning intervention at an early age with the focus of initiating more joint attention and acquiring the demonstration of higher play levels yielded greater spoken vocabulary scores at the five year follow up.
- Important factors for consideration are the timing and the content of the early intervention programme used in this study, the content focus was joint attention and play. All of the children who participated received 30 hours of intervention per week, this was delivered every day for six weeks, and following the programme they continued to receive a minimum of 20 hours per week of community interventions.
- Future research needs to focus on the children who remained nonverbal at age eight; they likely need more intensive, and/or different combinations of novel methods to assist these children to become verbal.

Full Reference

Kasari, C., Gulsrud, A., Freeman, S., Paparella, T. and Helleman, G. (2012). Longitudinal Follow up of Children with Autism Receiving Targeted Interventions on Joint Attention and Play. *Journal of American Academy of Child and Adolescent Psychiatry*, 51 (5), Elsevier Publishing.

BRIEF REPORT: LINKING EARLY JOINT ATTENTION AND PLAY ABILITIES TO LATER REPORTS OF FRIENDSHIPS FOR CHILDREN WITH ASD

BACKGROUND

It is well documented that children with autism experience significant obstacles that interfere with the development of high quality friendships. One of the core difficulties for children with autism is constructing meaningful interactions with another person. Researchers have highlighted poor joint attention skills; that is the ability to share events, emotions, and interactions with others as a potential contributing factor for delayed friendship development and reduced friendship quality for children with autism.

Previous studies have shown that nearly all children with autism can identify a friend however their identified choice can be unusual in that it may be a tutor/step parent. Children with autism report lower quality relationships as compared to typical children, this may be explained by the fact that only a third of friendships of children with autism are reciprocated at school as compared to about sixty percent of typical peers.

RESEARCH AIM

This is a follow up study exploring the influence of early joint attention and play in children with autism on child- and parent-reported friendship quality five years later. The study aims to provide preliminary evidence linking early core abilities such as joint attention and play to improved quality of friendships later in childhood.

RESEARCH METHOD

In the initial study children participated in developmental, joint attention and play measures as part of a randomised controlled trial design; the researchers contacted those 58 original participants five years later. Parents of forty children agreed to participate in a series of follow up assessments exploring friendship quality. For the purpose of the follow up study only children

with the ability to understand the definition of a friend and respond verbally were included, from the group of 40, 26 children matched this criteria. Several assessments were administered to those 26 children over two sessions lasting approximately two hours; the Autism Diagnostic Observation Schedule, (ADOS) Module 3 friendship section, the Differential Abilities Scale (DAS), two language assessments, The Peabody Picture Vocabulary Test, 3rd Edition, The Expressive Vocabulary Test (1st edition EVT) and the Friendship Qualities Scale (FQS).

The Friendship Qualities Scale is a validated instrument which assesses the quality of children's relationships according to five domains of friendship; companionship, help, security/intimacy, closeness and conflict.

RESEARCH FINDINGS

ADOS Friendship Questions: 23 children responded to the open-ended questions about friendships, three children were not able to respond to the questions 'do you have a friend (some friends)?' Children identified friends were from school (n=13), from their neighbourhood (n=5), from both school and neighbourhood (n=3) and friends as a result of their parents knowing the friend's parents (n=2). Generally the children used physical descriptions to describe their friends, a notable 35-56% could not provide answers to open-ended questions about their friends. There were no significant relationships between IQ, receptive language, or expressive language score and responses at follow up. Friendship Qualities Scale (FSQ): Both parents and children completed this questionnaire, 25 of the 26 surveys were completed. Consistent with the ADOS results 23 children answered with a specific friend's name which matched the name or one of the names provided by parents. A mixed model multivariate analysis of variance was

performed in order to compare child and parent reporting of friendships based on the five FSQ domains. Post hoc analysis indicated one significant difference in that children rated their friendships higher in the companionship domain than their parents. There were no significant relationships between IQ, receptive language, or expressive language and the FSQ domains at follow up.

Developmental Characteristics: The researchers conducted two separate multivariate linear regression models so as to determine if the four entry developmental characteristics (IQ, receptive language, expressive language and mental age) predicted the child's report of each of the five FSQ constructs. None of the developmental characteristics predicted either child- or parent-reported descriptions of friendships.

The Relation Between Joint Attention and Symbolic Play Behaviours and Friendship Qualities: Using multivariate linear regressions the researchers identified that the length of time spent in child-initiated joint engagement states at entry predicted higher parent-reported 'companionship' in child friendships at follow up. Post hoc analysis supported the study's hypothesis that entry joint attention initiations were related to higher ratings of 'closeness' at follow up. In addition when children presented with higher rates of responding to joint attention at entry there was lower child-reported 'conflict' in friendships at follow up and finally those children who presented at entry with significantly more novel play types reported more 'helpfulness' in the quality of their friendships at follow up.

IMPLICATIONS FOR PRACTICE

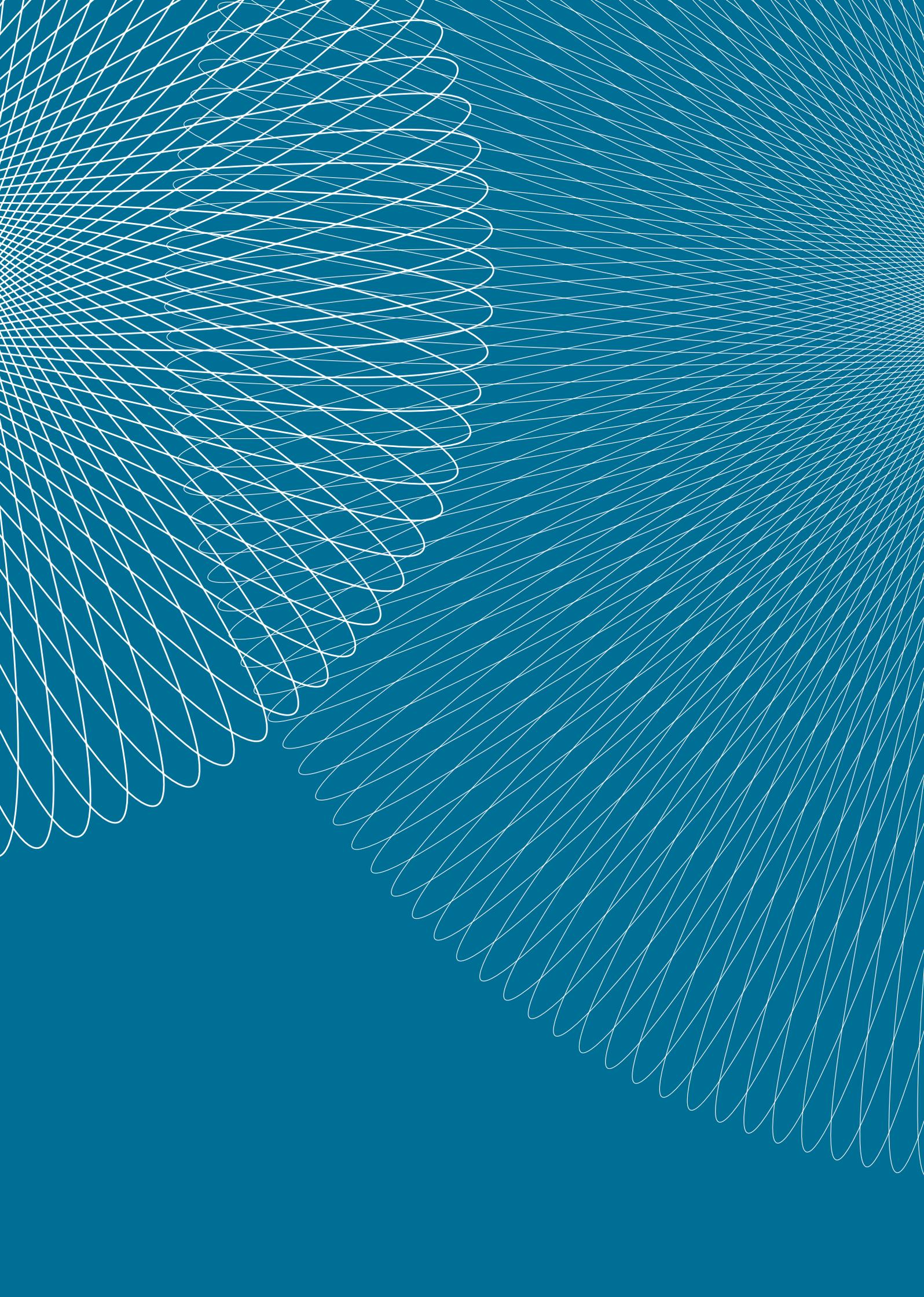
(by the authors)

- Similar to other studies children with autism described the quality of their friendships in terms of companionship, closeness and helpfulness but less so within the FSQ constructs of security and conflict.
 - Despite having cognitive and language abilities in the expected range for their age a relatively large percentage of children were unable to describe their friend in terms of their personal characteristics or what they do together.
 - The researchers identified that the early developmental ability to initiate and respond to joint attention and to sustain joint engagement with the parent as a three to four year old predicted children's reports of close friendships and the lack of conflict in their friendships later in childhood.
 - This suggests that joint attention and increasing a child's social motivation and interest in others may be critical to improving their experiences with others and acts as an indicator of later quality friendships.
 - The findings in this study are consistent with other research which found that joint attention and the demonstration of higher-level play skills in early childhood indicate greater social competence at school several years later.
 - In this study the majority of the children identified their friend/s from the school setting. Peer mediated interventions can improve social networks and school settings may be the ideal location for social skill and friendship interventions.
-

- Limitations of this study include small sample size and the lack of typical comparison group, also children may not always be accurate reporters. Parents also reported within this study using the FSQ however, given that most friends were identified within the school setting, future studies may want to include additional reporters such as teaching staff.

Full Reference

Freeman, S., Gulsrud, A., and Kasari, C. (2015). Brief Report: Linking Early Joint Attention and Play Abilities to Later Reports of Friendships for Children with ASD. *Journal of Autism Developmental Disorders*, 45, p. 2259-2266. Springer Publishing



PLAY AND JOINT ATTENTION OF CHILDREN WITH AUTISM IN THE PRESCHOOL SPECIAL EDUCATION CLASSROOM

BACKGROUND

During symbolic play and joint attention, young children with autism experience significant delays in social communication. These differences distinguish children with autism from their typically developing peers and from those with intellectual disabilities.

RESEARCH AIMS

The primary aim of this study was to compare play and joint attention in children with autism to those with other developmental delays within preschool special education settings.

RESEARCH METHODS

A total of 55 preschool children were recruited from a public early learning centre within a school catchment area. Participants included children with autism (n=27) and children with other developmental delays (n=28). Children with autism had a clinical diagnosis of autism from a psychologist or neurologist. Children with other developmental delays included those with speech/language delays, Down syndrome, cerebral palsy, ADHD and emotional/behaviour disorder.

Children, primarily boys, were aged from three to five years old with mental age scores between 18.5 and 59 months. Within the autism group there were proportionally more boys than girls, reflecting the gender ratio in autism. For each child, informed parental consent, assessments and observations were collected within one month. Demographic forms and teacher surveys were also completed within this time frame.

Eleven classrooms participated in the study consisting of between six and fourteen children taught by a teacher and two to four assistants. All teachers were female with approximately one to thirty two years teaching experience within a preschool setting. Two of the classrooms

were autism specific. Irrespective of the child's diagnosis or class designation, classroom practices were guided by the school designed curriculum.

Measures

Classroom Observation: Within a two week period, children were observed in their classroom on three separate mornings. Researchers blind to the children's diagnosis recorded any specific child and teacher behaviours towards the target child in five minute intervals for approximately two hour observation time for each child. An application specifically designed for collating behavioural data within educational settings was used to record data.

As a means of maintaining high levels of inter-rater reliability, initiating joint attention required the child to go beyond a coordinated joint look (i.e. shifting a gaze back and forth between an object/event or person) to also show clear gestures of shared interest (e.g. a show or point).

Teacher behaviours were coded when they provided any direct instructions or prompts for play or joint attention or if they responded to behaviours. Children's engagement states were also recorded in order to calculate the percentage of time children spent in each state.

The child's activities within the classroom were recorded as unstructured (e.g. free play), structured (circle), or caregiving (toileting, snack).

Structured Play Assessment: This measured the frequency, type and level of spontaneous play behaviours and were coded from a 15 minute video tape as a means of determining the highest level of play mastery. This involved the tester and the child sitting opposite each other at a table. The child was presented with four related toys e.g. a tea set, baby bottle, dolls, brush, mirror, doll furniture etc. To master a play level the child had to spontaneously initiate three play acts at a specific level of three different types.

Early Social Communication Scales: The child's nonverbal initiations and joint attention responses were scored using a 15 minute semi-structured videotaped assessment. As before, the child and tester sat across from each other with a set of toys that were visible to the child but out of reach. The tester presented the toys individually. This assessment allowed for the child's mastery of responding to and initiating joint attention to be determined.

Mullen Scales of Early Learning: Assessed language, motor and perceptual abilities for children.

Demographic Information: Parents/caregivers completed a demographic form in relation to their child.

Teacher Survey: A questionnaire was completed by teachers to collect teacher demographic information.

RESEARCH FINDINGS

Overall this study indicated that children with autism display fewer play and joint attention behaviours than children with other disabilities within the classroom setting. Teachers provided minimal teaching of play and joint attention responding to those behaviours at low levels. Notably teachers did not modify their teaching to address these developmental areas. Teacher and classroom variables were not linked to teacher performance.

Among analysis, 56% of the children's time was spent in structured activities, 32% in unstructured activities and 12% in caregiving activities. There were no significant differences in activity times between both groups of children.

In relation to engagement, this study revealed that children with autism spent 37% of the observed time in an unengaged manner i.e. they were not attending to or interacting with others or objects.

This reinforces the need that children with autism are more likely to require adult support to help them develop their levels of attention. The study further reported that children with autism have difficulty initiating engagement and therefore require greater environmental arrangements to be put in place to help them successfully engage with others within the classroom.

In considering play, despite children with autism being capable of playing at symbolic levels, they primarily played at functional levels. Teachers were found to seldom facilitate the play activities of children. When they did, focus was primarily on functional play despite the child's level of mastery in this type of play activity. As the teachers' responses to children's play were at such a low level, it was difficult to conclude whether these responses had any effect on the child's level of play.

Upon examining joint attention, children with autism, within this study, responded to and initiated fewer bids for joint attention in both the classroom and when assessed. Teachers did however provide more opportunities for all children with and without autism to respond to activities requiring joint attention. These opportunities took the form of using more pointing and showing to teach. In general, however, the teachers were found not to provide specific instruction about responding and initiating in order to enhance their joint attention abilities.

Whilst teachers naturally responded to the children's initiation of joint attention skills, they infrequently responded to them with regard to encouraging this behaviour. Teachers were also found not to teach specific verbal or nonverbal joint attention skills.

IMPLICATIONS FOR PRACTICE

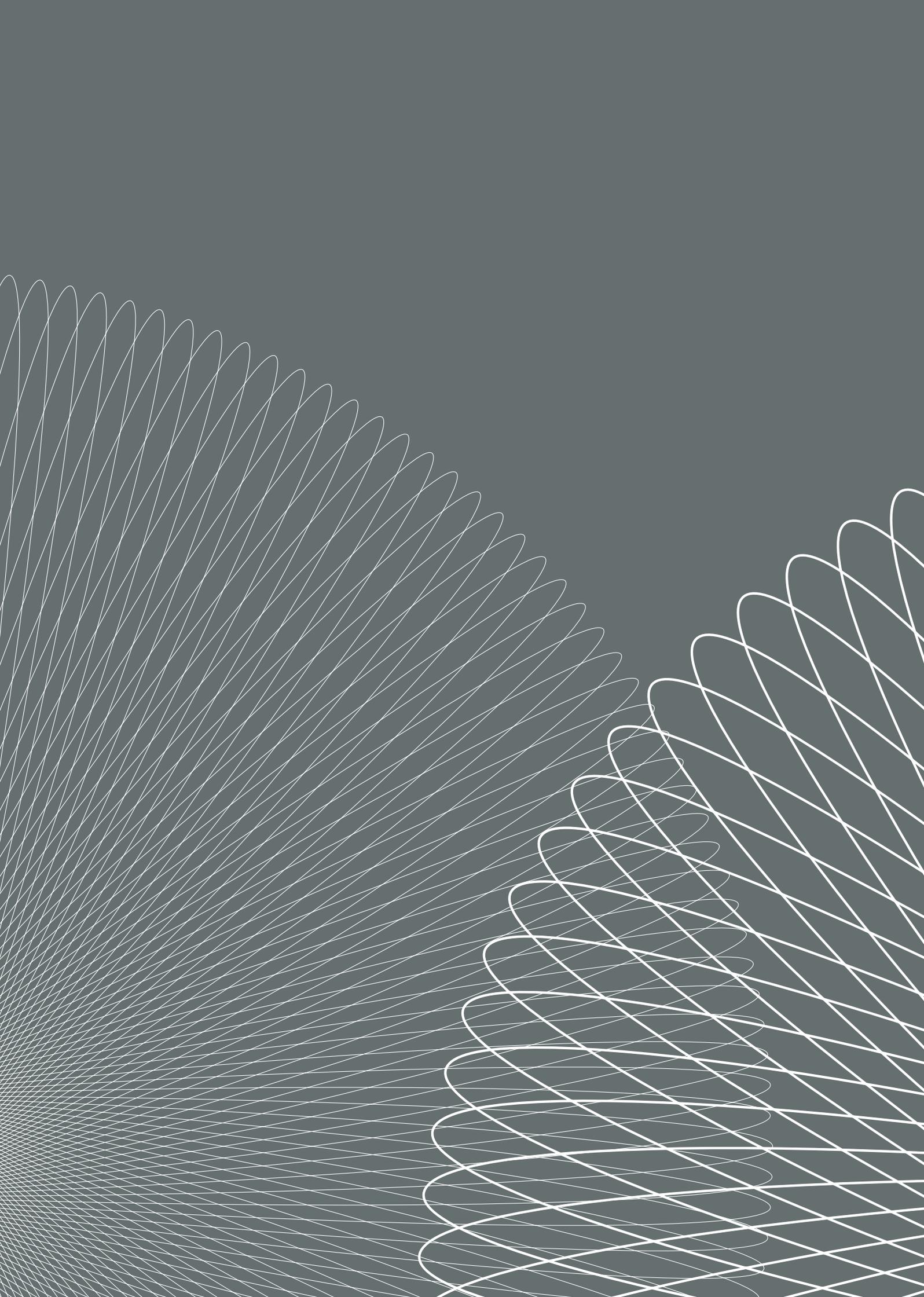
(by the authors)

In translating research on play and joint attention into practice for children with autism, the findings from this study highlight several factors that need to be considered.

- Children with autism are spending a significant proportion of time unengaged in the classroom. To be able to intervene on and increase children's symbolic play and joint behaviours this would prove difficult without decreasing the percentage of engagement.
- A lack of resources on play and joint attention is an issue for teachers. Early childhood curriculum guides need to be clear in describing symbolic play and joint attention acts which were not recognised. These should be treated as individual skills to be specifically taught and reinforced particularly for children with autism.
- In typical preschoolers, the goal is often independence, whereby teachers often take on the role of facilitator by establishing stimulating environments and providing functional support e.g. problem solving and finding materials. However children with autism may require more social support, needing additional guidance and structure to help them engage with others. Although children with other disabilities may naturally engage with others, children with autism may have too much independence in that they are not seeking out interaction with others in their classroom. Teachers may therefore require more support in learning about evidence-based practices targeting play and joint attention for children within the classroom.

Full Reference

Wong, F., and Graham, F.P. (2012). Play and Joint Attention of Children with Autism in the Preschool Special Education Classroom. *Journal of Autism and Developmental Disorders*, 42(10), p. 2152-2161.



THE RELATION BETWEEN SOCIAL ENGAGEMENT AND PRETEND PLAY IN AUTISM

BACKGROUND

Impairments in social engagement, creative symbolic play, and language are among the most prominent characteristics of children who receive the diagnosis of autism, yet there remains uncertainty about the relations among these features.

In this study play was defined as a composite of ratings on self-awareness in pretending, investment in symbolic meanings, creativity, and fun.

The authors felt it was important to record that atypical play among children with autism cannot be characterised as a straightforward inability to symbolise because as the child with autism gets older, even though they tend not to generate novel pretend play scenarios themselves, they are able to show pretend actions, either when presented with examples or when directly instructed to do so.

Funding for the study came from a National Institutes of Health (NIH) R03 Grant HD048654-01A1 awarded to the first and second authors, entitled Social and Cognitive Components of Play in Autism. Additional support to the first author was received from the Foundation for Autism Research and Remediation (FARR).

RESEARCH AIMS

The focus of this study was to explore individual differences in social interaction and communication (social engagement), symbolic play and language among children with autism and children with developmental disorder but not autism. The authors presented one hypothesis and three predictions:

Hypothesis:

- That among children with autism, the relative absence of such features of play reflects underlying social-developmental impairments.

Predictions:

- Ratings of 'playful pretend' in children with autism compared to children with developmental disabilities but not autism would differ. The authors predicted their findings would be in line with previous findings with the children with autism achieving a lower level playful pretend.
- Social engagement difficulties assessed on the ADOS would inversely correlate with scores for playful pretend on the ToPP.
- Impairments in communication/social interaction would explain a significant proportion of the variance in playful pretend, even when scores on the ToPP were taken into account.

RESEARCH METHODS

Fifty seven children aged between two years eleven months and nine years eight months participated in this study. All children had a verbal mental age (VMA) of at least 15 months, a level of ability below which one would not expect to see the emergence of pretend play. For inclusion in the study all participants were screened to show their ability to attribute symbolic meanings.

The children were matched for chronological age and VMA as assessed by the Preschool Language Scale-III, UK Edition. The children were separated into three groups:

- Children with a previous clinical diagnosis of autism that was confirmed on the ADOS (6 girls and 21 boys).
- Children with autism (3 girls and 11 boys).
- Children with Developmental Disabilities (DD) of varying aetiology (3 girls and 13 boys).

The authors used the Test of Pretend Play (ToPP) as their standardised measure. ToPP is designed for children with VMAs between one and six

years and covers three aspects of pretend play: the ability to substitute one object for another object or person, attribute an imagined property to an object or person, and reference to an absent object, person, or substance. ToPP was also chosen as it has been co-normed with the PLS-3UK, to enable direct comparisons between two measures of this study.

Administration of ToPP was videotaped and all 57 recordings were coded by a trained research assistant who received feedback from one of the developers of the ToPP. A second research assistant reliability coded 18 recordings and found coding to be excellent. When administering the ToPP the tester restricted involvement with the child's play, therefore play was solitary play rather than joint interactive play.

The researchers conducted additional ratings of the children's playfulness qualities by using a modified version of a measure they had designed for a previous study as they felt this complemented ToPP ratings.

ARTICLES REVIEWED

To understand the relation between social engagement and pretend play in children with autism the authors reviewed many previous studies and papers and reported the following:

Children with autism lack an innate mechanism needed to separate representations of the world from whatever is represented. This means that children with autism have difficulty in introducing symbolic meanings when objects are absent or to objects that usually mean something else. Deficits in pretend play can be attributed to aspects of executive dysfunction, for instance ability to disengage thinking from the real world, to shift flexibly among alternative interpretations of play materials, or to generate ideas.

A fundamental impairment in inter-subjective engagement between a child with autism and

another person's meaning causes the child with autism to have limited ability to register and identify with the other person's bodily expressed attitude and consequently this limits their ability to engage in a form of role-taking when engaging with objects during play.

RESEARCH FINDINGS

The authors found the outcomes of this study were in keeping with the results from a previous study which employed a different format for testing spontaneous and modelled symbolic play, with group differences reported in playful pretence despite group similarities in ratings.

When the pretend plays skills of children with autism are compared to children of similar mental and verbal ability with developmental delay, the pretend play skills of children with autism were lower.

This study found that there is a correlation between social engagement ability and playful pretence of children with autism and children with developmental disability.

The authors found impairments in social communication are associated with limitations in the quality of play (i.e., playful pretence), even when formal play skills (as assessed by the ToPP) are taken into account.

IMPLICATIONS FOR PRACTICE

(by the authors)

Evidence from this study suggests that individual differences in play abilities among children with autism as well as other developmental disabilities are in keeping with their differences in social engagement.

Full Reference

Hobson, J.A., Hobson, P.R., Malik, S., Bargiota, K., and Cal, S. (2013). The Relation between Social Engagement and Pretend Play in Autism. *British Journal of Developmental Psychology*, 31, p.114-127.

INCLUDING CHILDREN WITH AUTISM IN SOCIAL AND IMAGINARY PLAY WITH TYPICAL PEERS INTEGRATED PLAY GROUPS MODEL

BACKGROUND

Integrated Play Groups IPG, is a research validated model. Research which has been extensively documented shows that peer socialisation and play experiences are a vital part of children's learning, development and culture. The IPG model was developed for children on the autism spectrum who have difficulty accessing the benefits of social and imaginary play and therefore miss out on interactive play experiences which encourage developmental growth and meaningful peer relationships. It was originally developed for three to 11 year olds however it is now being adapted for teens and adults as well. It is intended to maximise each child's developmental potential, promote socialisation and communication while engaging in shared experiences with siblings and peers in a natural setting.

The article focuses on the theory as well as the use of the Integrated Play Groups (IPGs), as applied to children and adapted for adolescents.

The study begins with an investigation into the nature of play and the challenges it presents for children with autism from developmental, social and cultural viewpoints. The conceptual design of IPGs including an extension of the model, Integrated Teen Social Groups (ITSGs), is explained. The relevant research in this area is reviewed and the implications for practice are examined.

RESEARCH METHOD

The author describes an examination of literature and research on play beginning with challenges it presents for children with autism. The study continues with a review on play patterns and variations and the influence of peer-play culture. It investigates the research which informed the design and implementation of the IPG model as well as its recommended procedures for

assessment and intervention practice. It also provides a critique of the teen social model reviewing research and case study findings to inform outcomes and recommendations for future practice.

RESEARCH FINDINGS

Interventions that specifically support the needs of children with autism in the area of play are needed to allow them access to the experiences needed for social growth. The benefits of play in social settings with typical peers are highlighted in this study. These benefits have been established as the building blocks to addressing the fundamental problems of imagination and symbolic thinking in children with autism. The study is expanded to include research on the extension of the IPG model for older children and teens. This Integrated Teen Social Group focuses on social experiences to enhance social competence. The results of the research highlight an increase in the quality of interactions with peers when using the Integrated Teen Social Group model. It is also demonstrated that it allows the individuals with autism to fine tune skills and contextualise idiosyncratic behaviour. Both quantitative and qualitative measures verify the improvements in play and social skills and the associated gains which have been reported by parents, caregivers professional and the children themselves.

IMPLICATIONS FOR PRACTICE

(by the authors)

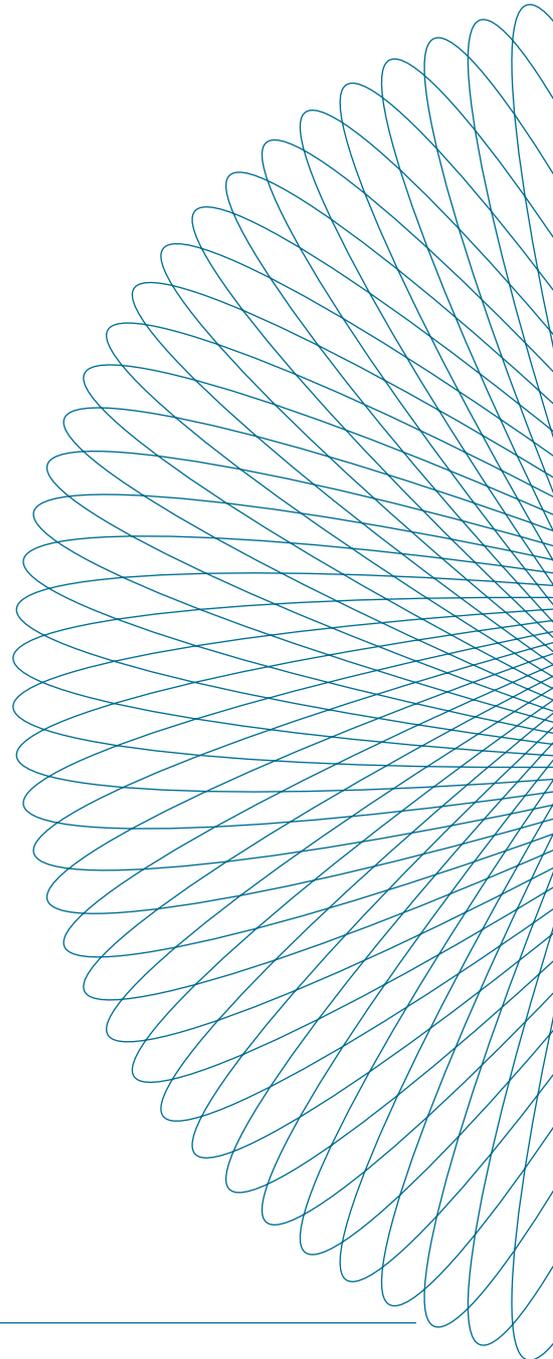
- Evidence suggests that children with autism share the same desires as typically developing children for play friendship and peer group acceptance. However it is when their repeated initiations are misinterpreted and the communication attempts fail that leads to rejection. The children subsequently stop trying which leads to the cycle of withdrawal

and aloofness that is associated with autism. Adults and children therefore need to help bridge this gap for young people with autism.

- IPG is a recognised and established competency based curriculum grounded model for use with children with autism which has been found to help them engage in play with typical peers in a social setting.
- The Integrated Teen Social model offers support to those with autism with problems of imagination and symbolic thinking while reducing social isolation. This enhances communication and symbolic skills which offers teenagers a step into peer culture and experiences vital to social growth.
- There is a need to educate children and adolescents with and without autism on the communication differences and idiosyncratic behaviours in the context of play and social encounters to allow both groups to interact in meaningful engagement.

Full Reference

De Witt, M., Bottema-Beutel, K. and Wolfberg, P. (2012). Including Children with Autism in Social and Imaginary Play with Typical Peers. *American Journal of Play*, 1(5), p.55-80.



TEACHING PLAY SKILLS TO CHILDREN WITH AUTISM THROUGH VIDEO MODELING: SMALL GROUP ARRANGEMENT AND OBSERVATIONAL LEARNING

BACKGROUND

It is generally accepted that play is one of the most important learning opportunities for every child. Learning play skills is compromised for children with autism as they have limited social and communication skills and often children with autism will withdraw from social situations due to impairments in these areas. As a result, children with autism generally display limited social relationships, have impairments in expressive language and engage in stereotypical behaviours. Previous research has shown that in order to teach social and communication skills, a systematic procedure needs to be adopted. Teaching the skills of role play to children with autism will allow development of a vast array of play skills repertoire and will also allow interaction with others. The target for this study was sociodramatic play which is in-vivo pretend play where the child takes on the role of a defined character.

RESEARCH AIMS

The aim of the study was to examine whether video modelling was an effective method of teaching sociodramatic play skills to children with autism using a small group arrangement.

RESEARCH METHODS

Three boys, all aged nine took part in the study. For children to be eligible to take part they had to be able to do the following: pay attention to visual and verbal stimuli for at least 20 minutes, imitate motor and verbal skills, take turns during group activities, follow verbal instructions, read written scripts and memorise what they had read. Three different scenarios were written for inclusion in the study. These included canteen, school and hospital scenarios and within each scenario there were three different roles to be played (participants were given just one role in each scenario). The canteen scenario included the roles of cashier, customer and canteen-worker; the

school scenario included the roles of teacher, student and inspector; the hospital scenario included the roles of doctor, nurse and patient. The dependent variable in the study was the percentage of correctly performed steps in each scenario and the independent variable was the video modelling. Multiple probe design across behaviours was used to examine the effectiveness of video modelling.

RESEARCH FINDINGS

The results of this study showed that video modelling was an effective method of teaching play skills to children with autism. All participants learned to play their given roles in each of the three scenarios and each of the participants maintained the skills taught during the training sessions when assessed two weeks later (range 80% to 100%). Social validity data showed that all participants were happy about taking part in the study. Participants were asked what they thought the benefits of taking part would be and typical responses included being more independent in the environments in which they had played their roles and being able to take part in school plays alongside their peer groups. Video modelling was effective for the children during the training sessions as it provided visual and attention seeking stimuli. Reliability data indicated 99% accuracy during full probe, daily probe and also during the maintenance sessions and 100% accuracy during the training sessions.

IMPLICATIONS FOR PRACTICE

(by the authors)

The results suggest that using video modelling is an effective way to teach sociodramatic play and is also beneficial for maintenance of acquired play skills two weeks later. It is recommended that video modelling to teach sociodramatic play skills should be replicated with writing different scenarios and with children with various kinds of impairments in order to improve the application of such skills to children outside of the autistic spectrum.

Full Reference

Ozen, A., Batu, S. and Birkan, B. (2012). Teaching Play Skills to Children with Autism through Video Modeling: Small Group Arrangement and Observational Learning. *Education and Training in Autism and Developmental Disabilities*, 47 (1), p. 84-96.

TEACHING PRETEND PLAY TO YOUNG CHILDREN WITH AUTISM

RESEARCH BACKGROUND

This research was carried out in a preschool where a tenet of inclusion of all is held. This child focused approach is based on the premise that the learning for daily routines, including play, is embedded through adult instruction and support in contextually appropriate instances, with the focus being on providing functional, durable and generalised skills. The authors conceded that although many feel that play is inherent to all children, those with autism may not instinctively seek or wish to engage in peer interaction or play with objects in the same manner as their typically developing peers. However, the benefits of play, including accruing communication and social skills, remains a crucial goal and instruction tool for children with autism.

Pretend play has been subdivided into four types, although accepted as not exhaustive:

1. Functional play with pretence.
2. Object substitution.
3. Imagining absent objects.
4. Assigning absent attributes.

RESEARCH AIMS

The researchers wish to define pretend play in light of current research and provide strategies which will allow for greater participation for children with autism in play activities within an inclusive classroom. From this single case study, the researchers wish to use their knowledge to encourage a child with autism to achieve the goals of:

- Socially interact with peers over three consecutive days.
- Three occasions either receiving or giving a play object to a peer.
- Four occasions commenting or requesting during play.

RESEARCH METHOD

Play behaviour observations were carried out on the child with autism and the peers in order to target play skills to be taught using specific toys and the researcher concluded that the best way to teach independent pretend play and thus stimulate the required interaction was through using the antecedent based practice of the system of least prompts. This included the use of the prompt hierarchy, which is a system of planning and delivering three to four prompts from least to most intrusive with the goal being, the child learning to engage in activities without the need for teacher intervention.

The researcher saw as core to meeting this aim as:

- Securing the child's attention through contingent imitation.
- Selecting prompts based on carefully evaluated observations.
- Developing these into an individualised prompting sequence.
- Allowing for rotation of activities to afford greater opportunities for engagement.
- Parental support, advice and involvement are always crucial to success within education.
- Reinforcement can come in many guises with the response of the adult and peers being the most appropriate in the development of social interaction skills.
- Ensuring the provision of play sequences which will add to the chance of greater peer involvement.
- Selection of empathetic peers may also have to be addressed.

RESEARCH FINDINGS

This flexible and child centred approach, which was continually evolving, based on the child's development of skills, allowed the researcher to report that his gamut of pretend play skills had expanded. This in turn allowed for more frequent opportunities to engage and interact with peers, using culturally and contextually appropriate pretend play language. The child's parents also recounted that the child more readily engaged in activities with siblings, thus creating a more accommodating and relaxed family environment.

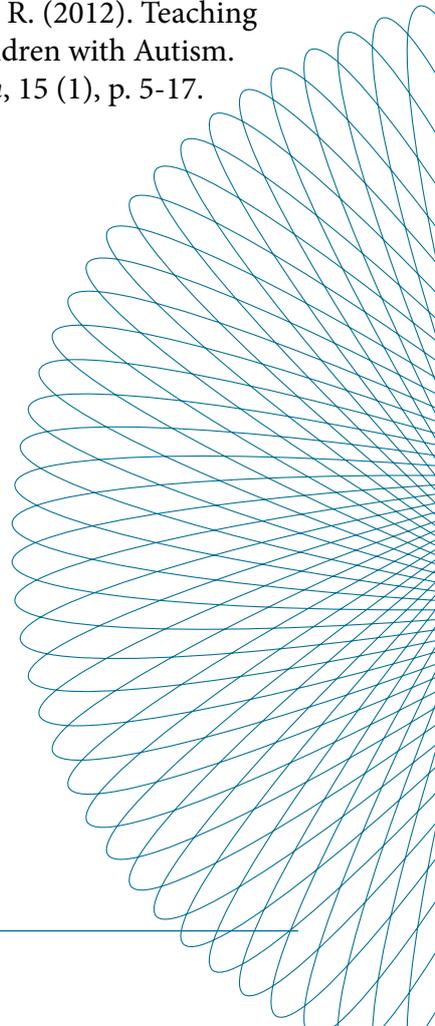
IMPLICATIONS FOR PRACTICE

(by the authors)

- The educator or parent must ensure that the child is engaged prior to beginning any intervention. This can be achieved by using contingent imitation, imitating the child's play behaviour using an identical resource.
- Remember that the selection of appropriate prompts may take some time and must be individualised to each particular child and may involve a trial and error approach before selection is complete.
- Direction for prompts and interaction will come from the child; if he or she does not feel sufficiently motivated to partake, he or she will not take ownership of the activity and wish to respond and interact.
- Use a variety of engaging toys and activities, allowing the child as many opportunities for pretend play as possible. Repetition of opportunity may allow for assimilation and accommodation of the concept of independent pretend play.
- Draw upon the expertise and knowledge of all of those involved including the parents, who will have information not readily accessible or even observed with the classroom.
- When reinforcing, it is vital that the adult does not interrupt the play but must tailor it to the individual child. Some children will need explicit direct descriptive feedback while others may need simply some form of affirmation or contribution from whomever he or she is playing with.
- If the premise is for social interaction with peers, the child with autism must be afforded chances of developing the play into a sequence, where one aspect evolves and is built on into further and maybe even deeper play.
- Supportive peers who are socially competent, consistently compliant and rarely absent can assist the child with autism as he or she develops the requisite skills for greater interaction.

Full Reference

Barton, E. E. and Pavilanis, R. (2012). Teaching Pretend Play to Young Children with Autism. *Young Exceptional Children*, 15 (1), p. 5-17.



THE USE OF LINKED ACTIVITY SCHEDULES TO TEACH CHILDREN WITH AUTISM TO PLAY HIDE-AND-SEEK

RESEARCH AIMS

This study based on the participation of six children with autism aims to examine the effectiveness of using photographic activity schedules to promote appropriate play and effective task specific social interaction for the children through the medium of a less structured play activity, hide-and-seek. Hide-and-seek involves a great deal of movement, two distinct roles with having fewer visual strategies to support understanding.

RESEARCH CONTEXT

The study was carried out in a preschool setting with six children with autism working in pairs, one being the 'hider' and the other the 'seeker'. Each child had an individually devised visual activity schedule which portrayed the role he or she was to play, yet linked to the role of the other child.

RESEARCH METHOD

The six recruited children, four five-year olds, two boys and two girls, one three-year old male and one female-year old female, all held an autism diagnosis and have previously received intensive behaviour-analytic instruction for somewhere between one and two years, thus experienced, the authors claimed fluent, with the use of activity schedules.

The children, all with his or her own individually devised and linked activity schedule, consisting of four laminated sheets, two pertaining to the 'hider' with the other two to the 'seeker', were paired and played together for one or two observed and videotaped sessions each day. During every session, each child had the chance to play both the 'hider', with supporting scripts of 'oh no' to be used when found and the 'seeker', with the script cards, 'Go hide' and 'I found you', twice within the timespan.

The scripts were designed to offer appropriate verbal communication throughout the game. The children were taught the rudiments of how to play their role and how to use the script to complete the game. Prompts, both visual and physical, were offered to each child and faded as the child learned the various aspects of the activity. Afterwards, the children's levels of engagement and participation in specific hide-and-seek appropriate behaviours were recorded with an independent observer scoring at least 30% of the interactions. Consensus was found and agreement calculated giving each child a percentage score for participation.

RESEARCH FINDINGS

Initially, none of the children independently carried out their role within the activity, many engaging in off-task behaviours, yet gradually over the various phases of the study, and the introduction of the prompts and supports, all of the children achieved approximately 80% stability in their appropriate hide-and-seek behaviours.

IMPLICATIONS FOR PRACTICE

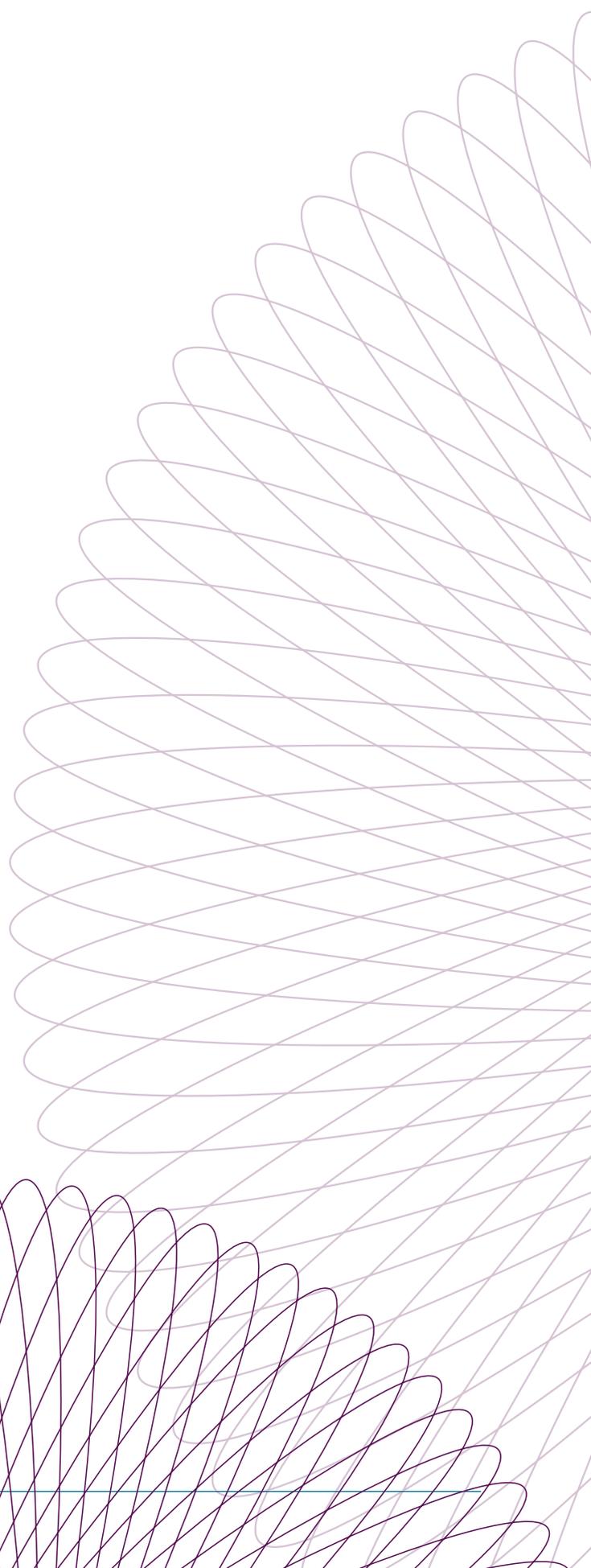
(by the authors)

- Children with autism may need individually designed supports, schedules and prompts to take part in novel play activities.
- To promote interaction and cooperative play opportunities, consider linking the schedules so they complement the role of another child.
- Such linked schedules can also offer opportunities for greater and more socially appropriate interactions even when the play is traditionally less structured.
- Only fade the prompts when the child has mastered the aspects but bear in mind that many children may need to continually use all of the supports and schedules as a means of activity completion.

- Although this study only covered two child interaction, the authors feel that it could be further differentiated to include three or more children.
- It may be beneficial to introduce such a procedure for more complex play activities moving towards reciprocal interactive play.

Full Reference

Brodhead, M. T., Higbee, T. S., Pollard, J. S., Akers, J. S. and Gerencser, K. R. (2014). The Use of Linked Activity Schedules to Teach Children with Autism to Play Hide-and-Seek. *Journal of Applied Behavior Analysis*, 47, p. 645-650.



TEACHING CHILDREN WITH AUTISM TO PLAY A VIDEO GAME USING ACTIVITY SCHEDULES AND GAME EMBEDDED SIMULTANEOUS VIDEO MODELING

BACKGROUND

Children with autism can have difficulties with social interactions and communication that impact on most areas of daily living and may limit independent engagement in leisure activities. Having the ability to play games with peers generates opportunities to learn social skills from peer interactions and may also improve motor skills. This study taught four children with autism to engage in an age-appropriate leisure skill, playing the video game Guitar Hero II™, through the use of various training methods.

RESEARCH AIMS

The aim of this study was to teach young children with autism to play the video game Guitar Hero II™ independently.

RESEARCH METHODS

Four participants (three boys and one girl) aged between nine and 12 years, with a diagnosis of autism and having adequate fine motor skills were taught to play the video game Guitar Hero II™. All participants exhibited minimal behaviour problems and were able to read and tolerate manual prompting.

Within a classroom environment, participants were taught to play the video game through the use of:

- a) An activity schedule to set up, turn on, and turn off the game and system.
- b) Simultaneous video modelling embedded in the game to teach manipulation of the Guitar Hero II™ controller to play the game.
- c) The training of multiple exemplars of songs to develop a generalised repertoire of playing Guitar Hero II™.

During each session, the primary experimenter and a second independent observer simultaneously collected data for schedule

completion and on-task behaviour, while data on guitar playing were obtained from electronic data collection embedded within the Guitar Hero II™ game. Baseline measures were taken prior to training. Once baseline was stable for the first participant, training was introduced, while the other three participants remained in the baseline phase. The introduction of the training procedure was staggered across the four participants. Snacks were used as reinforcers throughout the study.

RESEARCH FINDINGS

This study demonstrated that a training package consisting of an activity schedule, simultaneous video models embedded in a video game, and multiple-exemplar training was effective in teaching young children with autism a generalised repertoire of an age-appropriate leisure skill, playing the video game Guitar Hero II™.

The participants continued to correctly complete all scheduled components and remained on-task when the manual prompts, photographic activity schedule, and programmed reinforcement were fully removed.

IMPLICATIONS FOR PRACTICE

(by the authors)

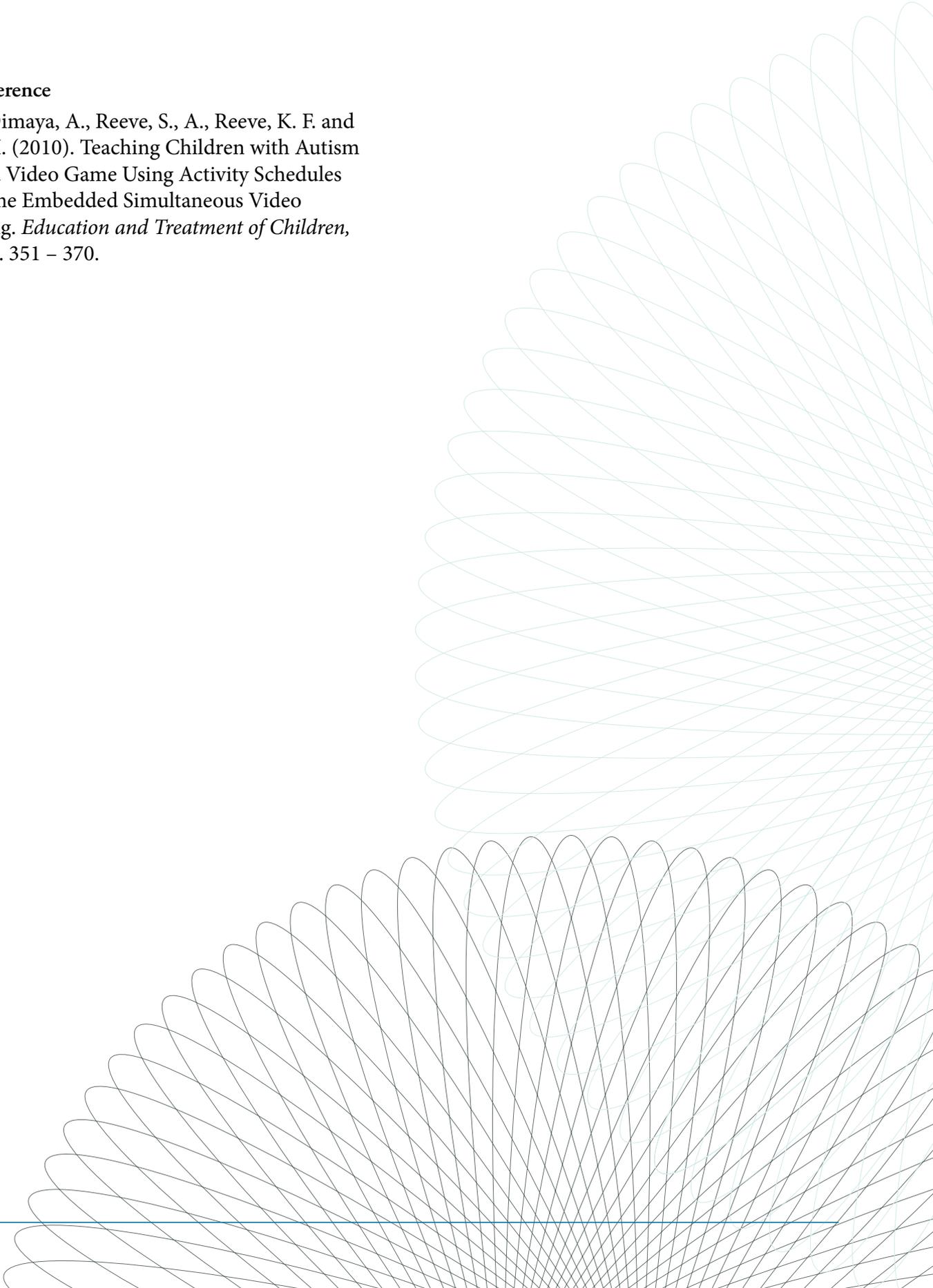
This study highlights:

- The importance of teaching students with autism how to play and engage in age appropriate leisure activities.
- The benefits of using video modelling as a method of illustrating to students with autism how to engage in age appropriate leisure activities.
- The possibilities of using video games as a teaching method.

Future research could focus on using a similar training package to teach other leisure skills, to students with autism.

Full Reference

Blum-Dimaya, A., Reeve, S., A., Reeve, K. F. and Hoch, H. (2010). Teaching Children with Autism to Play a Video Game Using Activity Schedules and Game Embedded Simultaneous Video Modeling. *Education and Treatment of Children*, 33 (3), p. 351 – 370.



CONCLUSION

The articles summarised above demonstrate that play underpins social and communicative development. Supporting children in the development of play skills can support the development of:

- Joint attention.
- Language development.
- Social interaction.

Play can also be used with older children to support social skills and the development of academic skills such as maths and English.

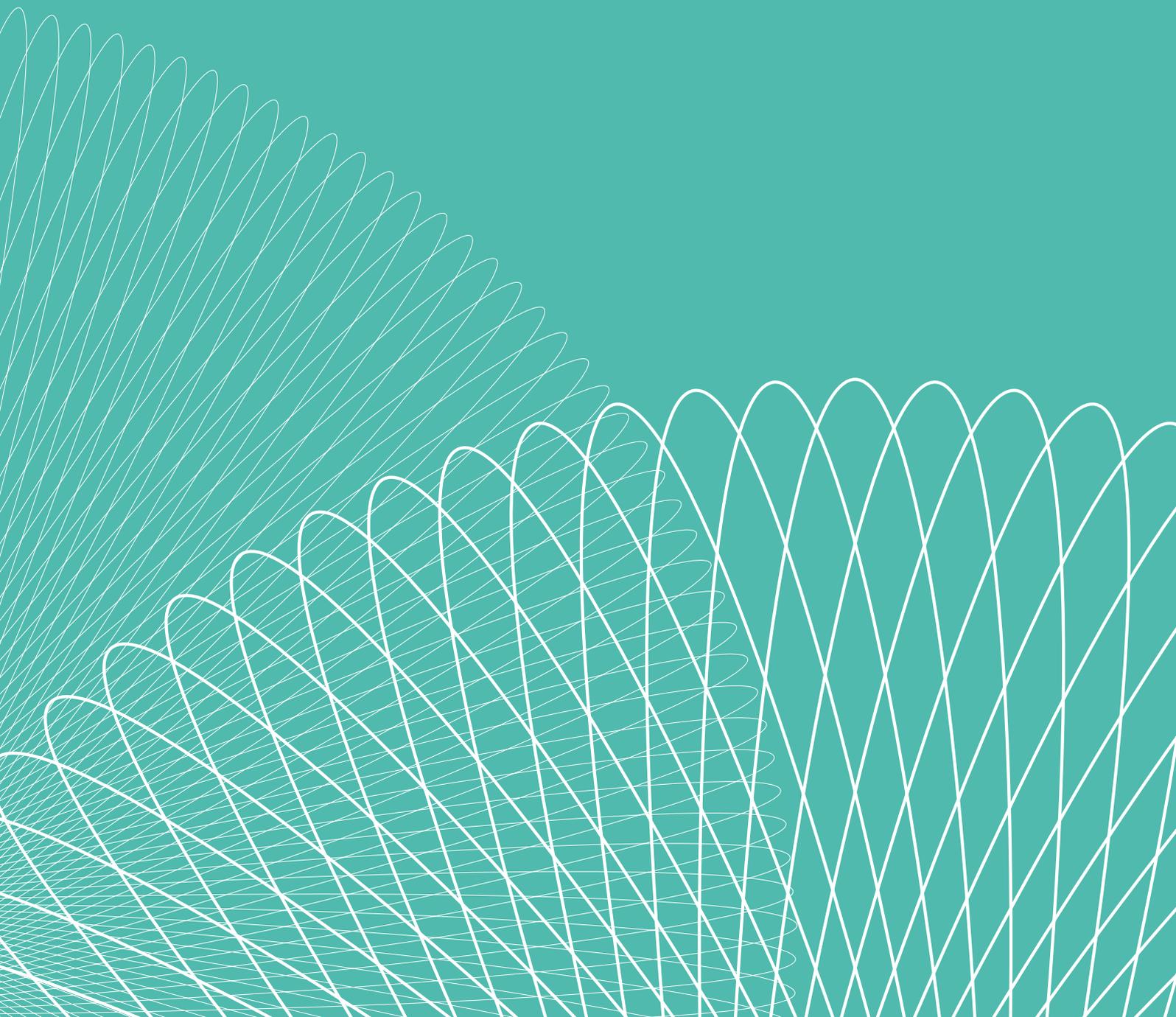
Teachers and parents can support the development of play by providing opportunities for the child to engage in structured play, keeping play instructions clear, removing distractions and having clear ground rules for the play. For older children this can be done through video modelling.

Technology provides useful opportunities for the development of play and researchers have used Guitar Hero and tablet based games and activities to promote social interaction and the development of life skills in older children and teenagers.

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.

[Survey for Autism and Play Volume 2](#)





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