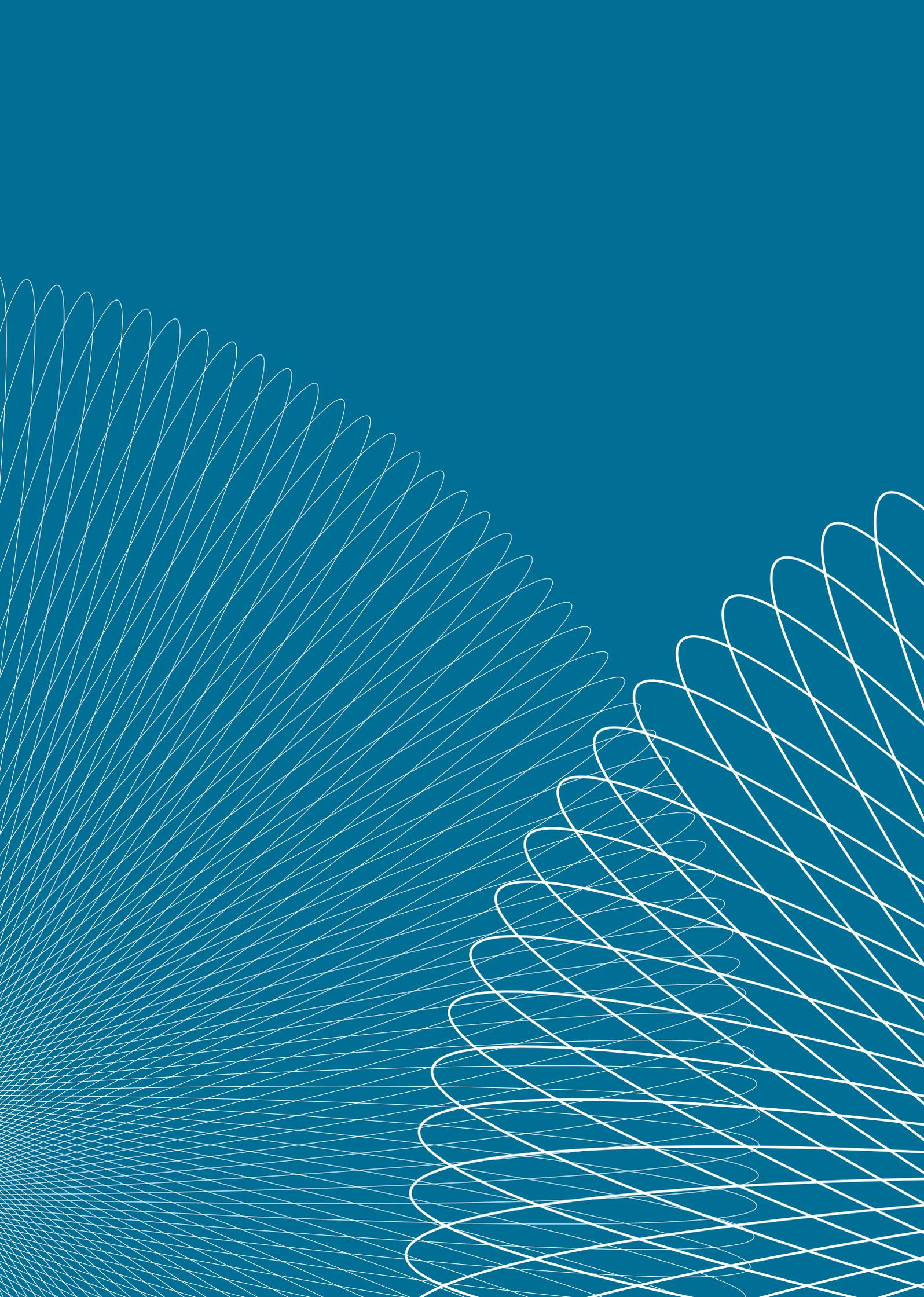




CENTRE FOR AUTISM
MIDDLETOWN

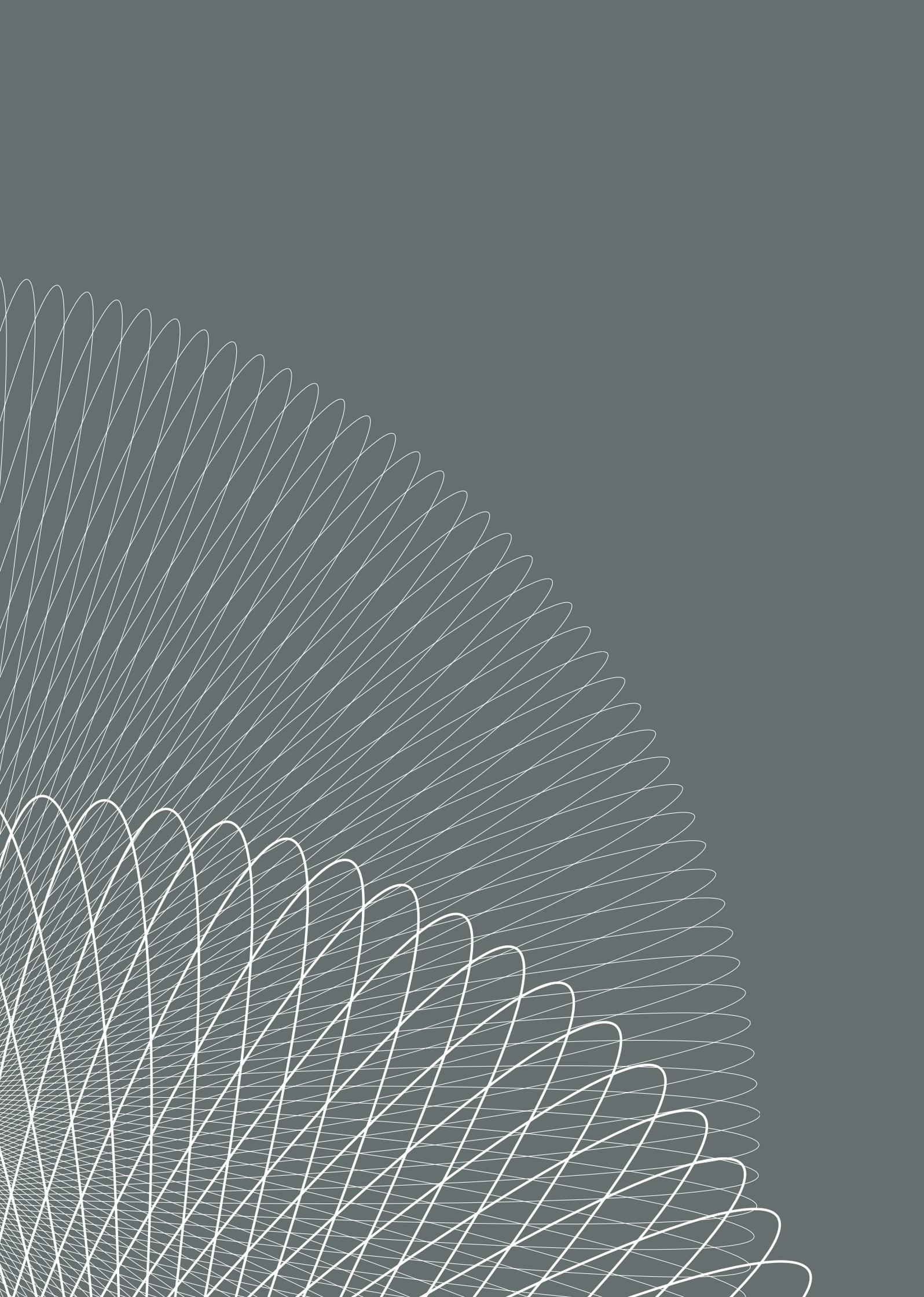
Outdoor Play





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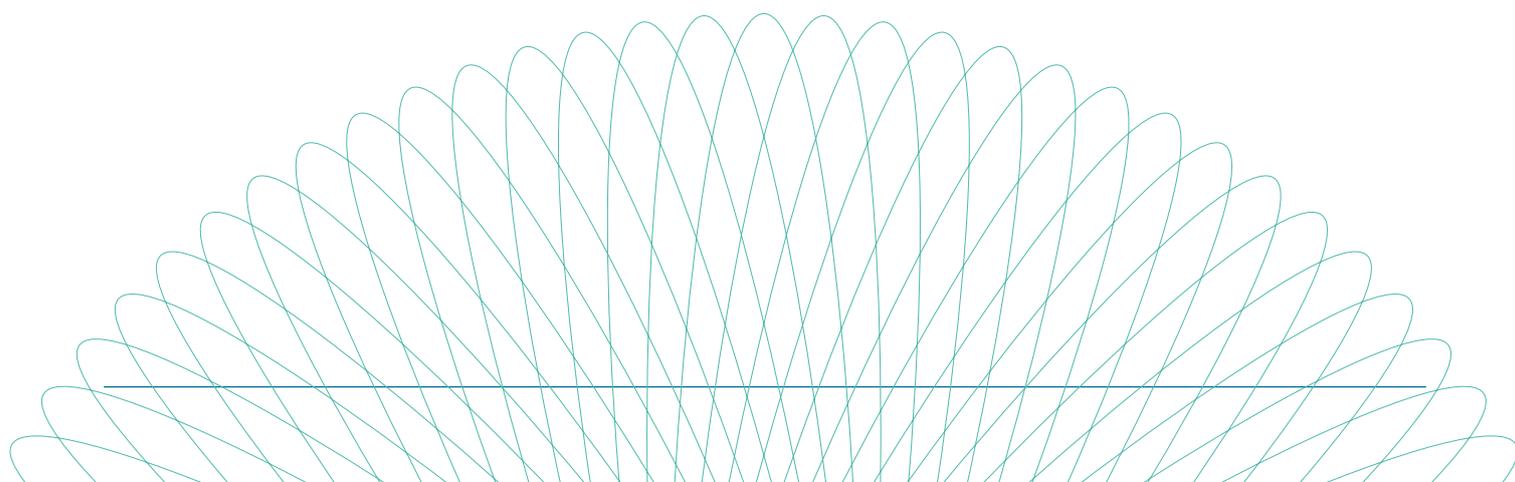


INTRODUCTION

This is the thirty-sixth Research Bulletin produced by Middletown Centre for Autism, providing summaries of twelve articles from 2016 to 2021.

The Bulletin commences with a special extended interview from Dr Helen Lynch. Dr Lynch has over 20 years' experience in the field of occupational therapy and is currently senior lecturer in the Department of Occupational Science and Occupational Therapy at University College Cork (UCC), specialising in developmental coordination disorder (DCD), environmental access, sensory integration and occupational development. Helen played a key role in developing a specialist unit in Cork for the assessment, diagnosis and treatment of children with DCD before joining UCC as a full-time lecturer and director of Brookfield Occupational Therapy Clinic in 2004. She has a keen interest in the relationship between occupational science and children's participation in play, with a focus on inclusive outdoor play environments. As such, Dr Lynch is involved in a number of research projects focusing on outdoor play access for children with disabilities and is widely published within the field. She is currently co-principal investigator on the P4play project, designing a PhD programme around play and social inclusion.

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 DR HELEN LYNCH

1. Why is outdoor play important for autistic children?

Outdoor play is important for all children due to the freedom it tends to offer because of the unstructured environment, which usually involves a connection with nature also. When we say unstructured we are comparing the outside with the inside spaces, where inside tends to have more rules and expectations for how to behave. For example, in many family homes sitting rooms and kitchens are not for running through, and tables or chairs are not for standing on. In contrast, outside children can often play with more freedom and climb and run through the garden or yard with less restriction. In such spaces, children can follow their inner drive and explore or avoid the physical and sensory environments as they please more easily than they often can do indoors. In this way, we often say that outdoor play is closer to real play as the child self-directs their own play and follows their own play preferences more frequently, and is free to be themselves.

Connecting with nature is also known to offer benefits such as reducing stress and is a support for well-being. Research has shown us that being in nature, for children, is more beneficial when they experience nature through free play, and in this way they are more likely to develop a love of nature compared to when you provide them with formal education about nature.

The one paper I have read that inspires me most about the importance of outdoor play for autistic children was written by Carmel Conn in 2015. In her work she analysed autobiographies of people with autism to try and understand their experiences of play when they were children. She found that the most commonly reported feature of play in their childhood was the enjoyment of sensory experiences and the physical thrills of the

intensity of these experiences. In particular she found that many of these authors experienced comfort, exhilaration and enhanced self-awareness from moving freely through space – running, jumping and climbing, for example. This shows me that outdoor play does not need to be complex or involve a lot of structured materials or play components for it to be fun and meaningful for autistic children.

2. What particular barriers do autistic children face in accessing outdoor play?

In the past ten years I have been able to work with families and communities to study and research play as an occupation, i.e. play activity that is freely expressed and experienced by children as they explain it to me in their own words or actions. In our work we have found that commonly autistic children enjoy the freedom of the outdoors and especially like the sensory affordances it offers, including windy weather or the sounds of leaves in the trees.

Mostly families have said this is mainly evident at home where they can play at will; however, for many autistic children outdoors can be scary due to the unpredictable sensory characteristics, for example the uncontrolled nature of leaves falling in the autumn or the uncertainty of feeling sand underfoot on a beach. This just shows that we need to consider the individual child's play preferences and understand specific barriers to their enjoyment as an important starting point.

However, barriers to accessing outdoor play are more evident in the community, and parents have told us that the biggest barrier they face is going as a family to community spaces such as playgrounds and feeling unwelcome or stigmatised; this has been the case especially when an autistic child becomes overwhelmed or behaves in a different way to others. One family

told us they could no longer visit the playground because of the resulting stress it caused them and wished they could go to a playground that had an autism friendly hour so they could relax and enjoy the experience.

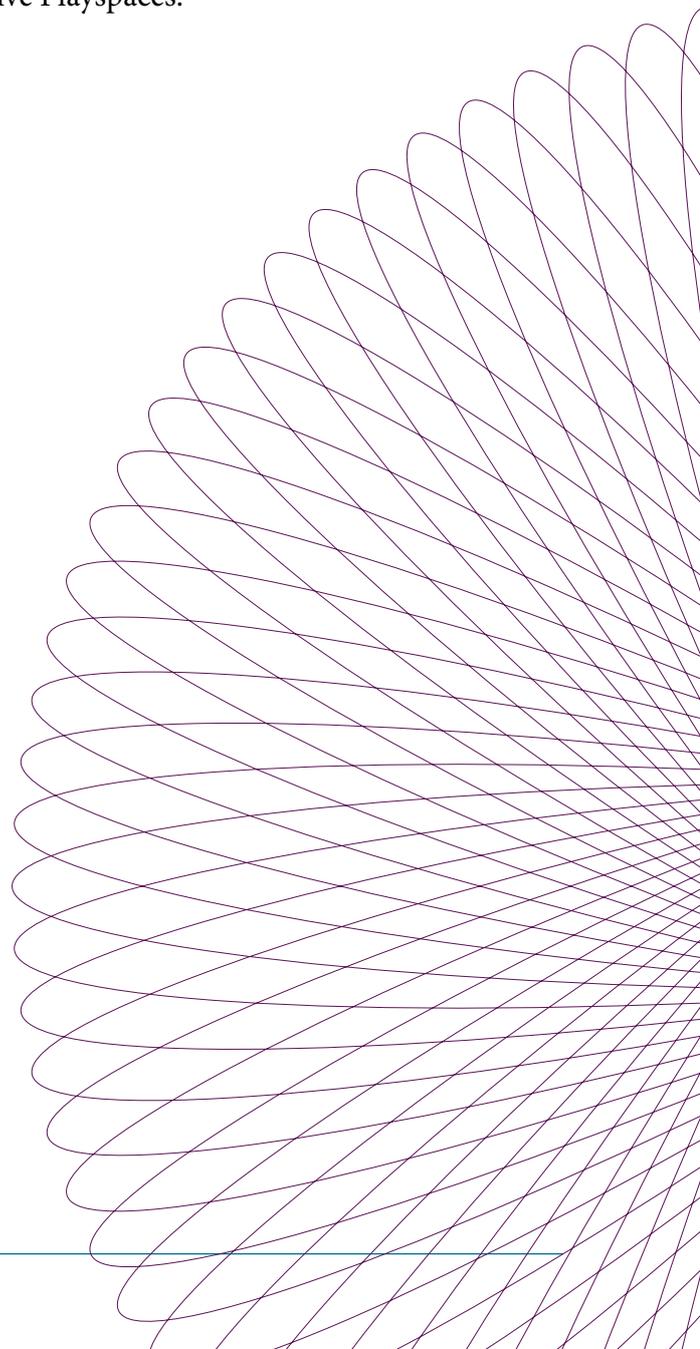
Another barrier families have told us about is the poor design for autistic children. Barriers such as not having a fence around the playground means there is no way to let the child play freely as they might wander off beyond the boundaries of the space. Another barrier is where the child needs to have a quiet space in the playground and have the choice to play alone, but this is often not available to them. So, particularly in relation to playgrounds, there is a big need for increasing awareness on the play needs of all children, especially autistic children, and their families.

3. What does an inclusive outdoor play space look like?

Outdoor play spaces are any places where children play and can include, for example, parks, cul-de-sacs and playgrounds. Importantly, when you consider the purpose of outdoor playgrounds, they are provided by the city or town councils/ municipalities for the whole community to use. Therefore, one way to remove barriers to play in playgrounds is to ensure that when communities provide these playgrounds they make sure to build them as inclusive outdoor play spaces for all.

An inclusive outdoor play space is difficult to describe as there is not one type of play space but many. To be inclusive it needs to be high in play value for children of different ages, sizes, abilities and play preferences. This means consideration for varied ways to provide fun and challenge for children, usually involving speed, like on zip wires or slides, heights such as slopes and climbing walls, and places to run, hide and jump, etc.

However, the main issue is that it should feel a hundred per cent welcoming to all children and families in the community, so we need to consider how to design play spaces, and in particular playgrounds so that this welcome factor is central – that all playgrounds should be designed to be a hundred per cent inclusive, i.e. welcome to all. For a lovely example of guidelines for inclusive playgrounds from New South Wales look up *Everyone Can Play: A Guideline to Create Inclusive Playspaces*.



4. What is a universal design playground and what are the benefits for autistic children?

Universal design (UD) is a concept for designing for inclusion that has been endorsed as the way forward according to the United Nations Convention on the Rights of Persons with Disabilities (UNCRPD) and the General Comment No. 17 that concerns children's rights to play in communities. A UD playground is one where the designers and providers work to ensure the playground is accessible and also usable to the greatest extent possible for as many people possible, without the need for specialised equipment.

Sometimes it is easier to say what UD is not too! For example, it is not about designing for disability but about designing for all. It is also not just about designing accessible spaces for children who use wheelchairs, which is often the mistake people make about UD. It goes beyond accessibility and considers designing for usability, which for playgrounds means asking the question: once a child can get to the playground (access), can a child stay and play there?

Just to explain the difference between accessibility and usability: accessibility is typically concerned with how to get from one place to another, such as having a level path to the playground or a large opening into a play tunnel or playhouse in the playground. In many countries accessibility is built into national standards for access, whereby all public buildings and spaces should have ways for people with disabilities to get into and out of places. Usability is more about how the child uses the playground components, such as swings and slides, once they get to them. There is little benefit for children if they can access a playground but in the end can't play there, so usability is a really

important aspect that often gets forgotten. That is why we need to consider taking a UD approach to designing playgrounds as it helps us plan for the most important things, i.e. play!

There are many ways we can use UD to design for play value to benefit autistic children and their families. For example, there are features about the playground that can help a family, such as having a boundary around the space, for situations where an autistic child may not understand nearby danger (e.g. if there is a road or river close to the playground) and families need to be able to leave the child to explore and play freely and not worry about the lack of fencing. Playgrounds can include more sensory features to provide enhanced experiences for autistic children and consider quiet places as well as social spaces so the child can choose to play in different ways. Importantly, sensory features should be built into the playground design as interactive aspects and not limited to something like a sensory garden whereby children may not be able to interact with the sensory aspects of the space other than to look and smell. There is a need also to address the other senses of movement (vestibular), body awareness (proprioception), touch and sound.

Many autistic children like to watch others play, so ensuring they can climb high and look over the play space to see how others play is valuable, and also it helps them understand the flow of the play space, which may not be so clear to them. It helps if they know the layout and map of the space so they can figure out how to use it more easily. These are only some ideas, but we need to build our knowledge about autistic children and their play cultures so that we can then build our knowledge for designing better playgrounds that are inclusive.

5. How can autistic children and families be supported to access outdoor play in the community?

One way to help build our knowledge on better design for playgrounds that are more inclusive is for the professionals who design and provide community playgrounds to work more closely with families of autistic children. Internationally there is a consensus that when playgrounds are being developed in a community local community consultation should always happen. We need to bring in families of autistic children to these consultations and make sure that their play needs are factored into playground provision. Here in the Republic of Ireland the Department of Children has been leading this work on child participation and this year (2021) launched the Participation Framework for local authorities to use for example. If we could build this commitment to engagement with the autism community in playground provision, it could really make a difference.

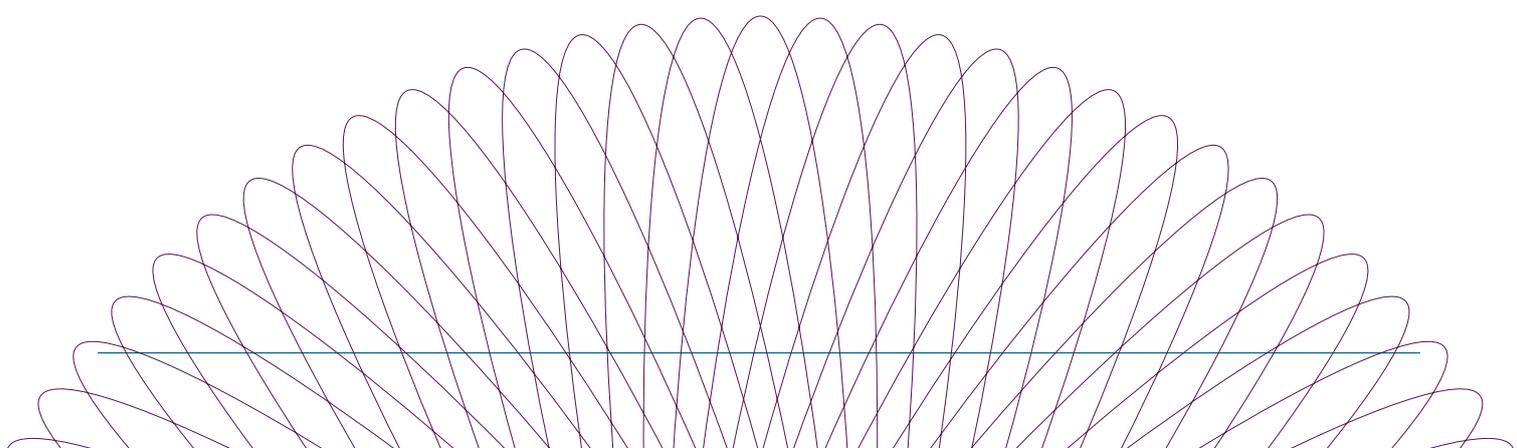
Other initiatives that have developed in communities to support access to outdoor play for families is the closing of streets so that a community can provide play opportunities in their neighbourhoods and collaborate to provide outdoor play, even in urban areas. The Playing Out programme in the UK is one example that

has had much success, and similar initiatives are increasing across the island of Ireland, especially since Covid-19.

In many cases these kinds of community initiatives are closely linked with child friendly community programmes, such as was launched in Derry city and Strabane in 2018, and which we are developing here in Cork. In the Netherlands we have seen projects developed by the Speeluinbende organisation, whereby families of children with special needs are supported to become routine users of local playgrounds by having regular play dates in playgrounds facilitated by play staff. These are some examples of ways we can explore enhancing supports for families.

6. How can schools, often with limited resources, promote inclusive outdoor play and participation for all children?

As we have seen earlier, outdoor play does not require significant commitment to expensive equipment but needs to be assessed for play value. In schools there are many ways to plan for enhanced play value even with limited resources. Schools often are places that do not have funding for outdoor play equipment and more commonly in the Republic of Ireland might have markings on the yard or a soccer net for ball play but not much else.



One way to enhance play can be to assess the outdoor spaces available to the school and include green areas that can really enhance play. Schoolyard greening is a particular area of research development in recent years and there are many lovely resources to explore this for your school (see, for example, Children and Nature Network and Learning Through Landscapes UK). Although these initiatives do not target autistic children specifically, they are examples of whole-school approaches to enhancing outdoor play that should be approached from a UD and inclusion perspective to maximise impact and participation for all children. Any such projects require a diverse range of expertise, therefore, to maximise value, and this includes the occupational therapist.

These initiatives often require a shift in expectation and culture of the school, and sometimes the school community needs to do a lot of work first to strengthen their awareness of the importance of play and added value for their child. A school play policy might help with this. Equally, establishing some playground rules can help the child know how to behave in break times in the schoolyard.

In one school we worked with the school principal and school staff told us how they realised they had to change their attitudes towards muck and dirt in the school and encourage the children to play in the grassy slopes and climbing areas while knowing that there would be a need to clean up when they came back in from the yard. Families in this school came on board and made sure to provide outdoor wellies for playtime when it was wet, while cleaners knew to expect more dirt inside the school. This all took time and many meetings but overall, by the end of the year, the team felt it was worth it.

The vice-principal of the school – who was also the special needs teacher – told us how she could see that the autistic children were more likely to be involved in the play events the children were now engaging in, and staff could see increased inclusion happening naturally and fewer incidences of distress. This was an unanticipated outcome for us and shows how the structure of the physical environment is a significant influencer on play and inclusion.

7. What is the role of the occupational therapist in supporting outdoor play for autistic children?

The occupational therapist brings an important perspective to providing for outdoor play for autistic children as we are specialised in analysing the needs and characteristics of the **person**, the qualities of the **environment** and what the person needs to do there (the **occupation**) – in this case, play. In relation to outdoor play, the occupational therapist has specialised skills in analysing the child's play needs, knowing about the characteristics of the environment, and being able to envision the best fit between the child and environment so that the play value is optimised. Occupational therapists also know about UD and how to maximise accessibility and usability.

Most of all, however, occupational therapists know about play and support outdoor play provision by identifying gaps in play opportunities in a play space, provide recommendations for addressing these gaps and support playground initiatives to enhance play in communities. This can include providing training to communities to increase awareness of the importance of play and providing consultation on playground plans.

In my experience also, as an occupational therapist, I understand that consultation with children with special needs is an advanced skill. These kinds of consultations require us to ensure that we provide the children with authentic opportunities to tell us what they think and to understand their needs. Most importantly, if a consultation is effective, there should be a clear impact – that the children’s input and needs have influenced the outcome of the design. This is a challenge to playground designers and providers as often they do not have experience of special needs or how to consult effectively with children. Unless we can build our knowledge on this aspect of consultation, councils and municipalities will continue to avoid talking and consulting with families and autistic children. This is an important area that needs to be addressed and one I am currently working on with my colleagues here in UCC to develop our knowledge and hopefully develop resources to enhance children’s participation in playground consultations. The *Participation Framework* guides us in how to implement good practice in child participation.

8. How can supporting adults help to engage autistic children with outdoor play?

There are so many ways adults can help engage children with outdoor play. For all of us this means starting with trying to understand the autistic child’s play needs and play preferences. Susan Spitzer (an American occupational therapist) researched with autistic children to try and understand their motivation and joy from simple occupations or activities. She said from her work that: ‘Adults often have trouble interpreting children’s actions from the child’s perspective rather than from their own adult standards, needs and wants’ (Spitzer 2003, page 71) and



recommended some core steps to help us in this task:

1. To suspend our adult assumptions – children choose what they need and want to do which may be different to what we think they need.
2. To assume all actions are potentially communicative and tell us something about what the child enjoys or needs to do.
3. To explore what the child needs or wants to do, by doing it with them.

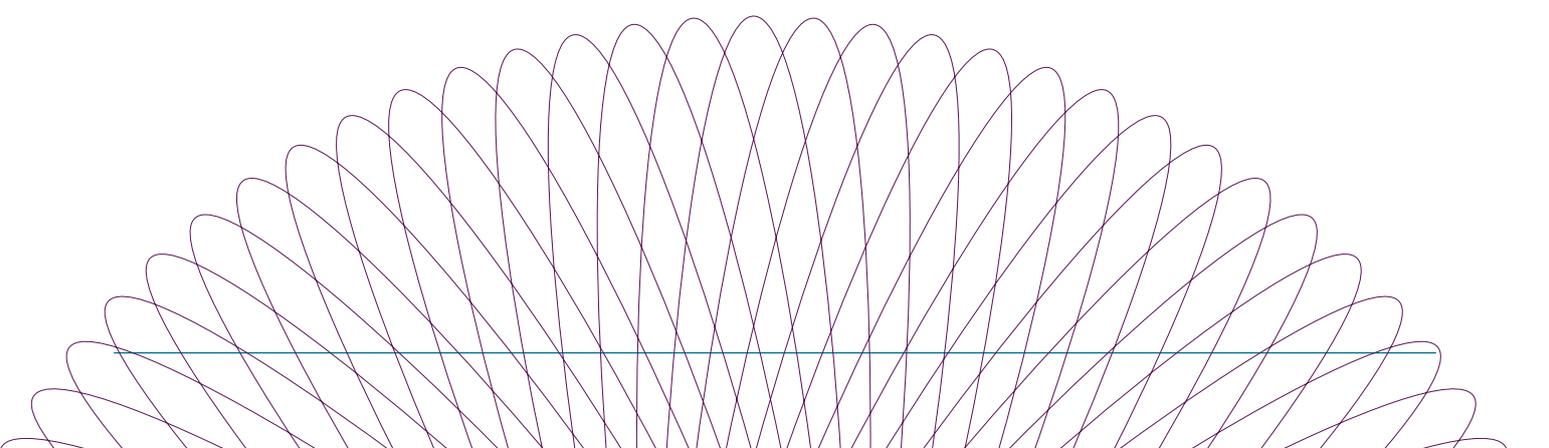
For autistic children this means we try to park our assumptions and try to put ourselves in the child’s shoes to imagine what their sensory experiences are and how they are experiencing the world. This is needed especially if the child is not able to tell us themselves. When we apply this to play there are many challenges, as sometimes an autistic child may like to play in ways that other children do not like. As an adult

in a role of parent or family member, you may have a strong desire to teach your child how to behave differently and how to play in other ways. However, as for all children, there needs to be a space for both, ideally: a time the child can be themselves with no expectations, and also a time where the child needs to learn how to play in other ways so that they can make friends more easily and take part in the greater community.

Once we know the child's play preferences, we can try to provide for that in the home. Having a separate outdoor play area for your child may help with this, if this is possible, and having it adapted or organised in a way that enables play and reduces hazards will be important. In the garden or yard at home adults can more easily structure the environment and set up outdoor play: for example, having clear boundaries for where the play space is might be important if you need to protect the vegetable patch or keep family pets away. Within the space consider having a shelter and/or a retreat space such as a tent or playhouse as well as typical outdoor pieces such as swings or trampolines. From our experience autistic children love to move about freely, so keeping open spaces for free running and more intensive motor play is valuable to consider. Pinterest is a great source of ideas for low-cost ways to enhance outdoor play, and use recycled materials to bring in nature play with water, loose materials like stones and dirt, sticks and gravel, wind and light.

Sometimes it helps also to organise family chores outside as children will often play outside more frequently if the parent is outside with them too. Enabling play so that friends can play together will be one concern for many families, so organising play dates will be important where possible. Most of all, being able to meet and explore play solutions with other families of autistic children really builds your capacity to problem-solve as your child's needs will change and evolve as they grow and develop.

Finally, play is often the main way families interact, especially when the children are young, and that means finding ways for having fun together. It is so important for adults to remember about fun, and that play can be most fun when it is not overly structured and meets your own needs as well as your child's.



THE EFFECT OF PHOTOGRAPHIC ACTIVITY SCHEDULES ON MODERATE-TO-VIGOROUS PHYSICAL ACTIVITY IN CHILDREN WITH AUTISM SPECTRUM DISORDER

BACKGROUND

With the increasing number of students not engaging with the recommended quantity of physical activity (60 minutes moderate-to-vigorous physical activity (MVPA) daily) and with autistic students demonstrating less MVPA than their peers, students may not be getting the opportunity to amass the related health benefits. These benefits include improved bone health, muscular fitness, cognitive functioning and sleep, which can help reduce the risk of depression and obesity. The authors wished to discover whether using and teaching with photographic activity schedules (PAS): a series of pictures designed to prompt partaking in a specific order of activities that are already present in indoor activities, could promote engagement and participation for autistic children during outdoor play opportunities.

RESEARCH AIMS

This research aimed to discover if the use of PAS, which are commonplace in the teaching of indoor leisure and academic activities and have increased self-management and independent activity during unstructured time as well as participation in low or non-preferred activities, could be differentiated to encourage greater physical activity in other settings, particularly outdoors. The researchers recognised that the children may benefit from a greater number of physically based activities throughout the day, and that limiting such activities to indoors was limiting the MVPA of the children.

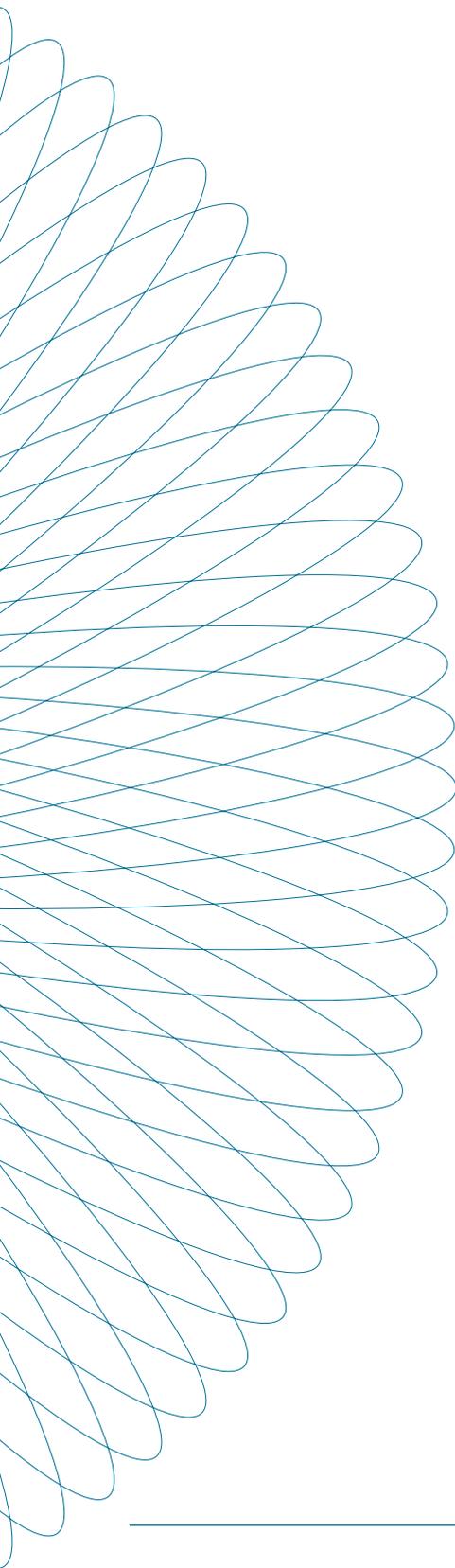
RESEARCH METHODS

Three autistic children were selected to take part in the research. Each child had demonstrated an ability to use PAS effectively within indoor activities and all were reluctant to partake in the recommended MVPA outdoors.

Specific environments were designed outdoors and indoors:

- Fixed equipment structures: jungle gym activities with a PAS demonstrating how to use each piece of equipment.
- Empty field: no resources, yet the PAS offered a range of uses and movements; for example, bear walks, which had previously been introduced through the video-modelling process and consolidated with teacher–pupil imitation in the safe, secure and familiar environment of the classroom.
- Outdoor toy area: 13 separate activities available with corresponding PAS. Again, a similar form of instruction was provided as described above.
- Control environment: activities available here offered limited physical activity – crayons, colouring book, small toys.

The number of minutes engaged with each activity was recorded. The PAS linked to each piece of apparatus was individually taught to each child to ensure he or she was aware of the expected behaviour needed for task completion and to allow for a randomised approach when introducing the children to the activities. This was also seen to address the children's independent use of equipment during outdoor play.



The researchers also noted the percentage of independent use of the PAS by each child, which involved opening the schedule, touching the picture, completing the activity, returning to the schedule and progressing to the next activity.

RESEARCH FINDINGS

During the baseline assessment (pre-introduction of PAS) participation in the indoor activities proved most successful, with the highest rates of MVPA. The children may have been more motivated to engage in a familiar environment with strategies that they were used to indoors – the PAS. They may have experienced difficulties generalising the use of PAS in an unfamiliar environment – the outdoors, where expectation of suitable behaviour had not been established. The children also experienced difficulties when required to engage where no specific equipment was readily available, thus increasing uncertainty of expectation.

After the introduction of the PAS, the instruction of use, the demonstration of activities and the reduction in prompting, which all took time and an individualised approach, the levels of MVPA by all three children increased, as did the children's engagement in schedule-following behaviours. The children knew the expectations of the environment and were more likely to engage and participate, thereby increasing their MVPA.

Originally, being prompted supported the use of the PAS, but when independence and confidence increased the volume of prompting was reduced. This increased autonomy may have had a positive impact on the MVPA.

IMPLICATIONS FOR PRACTICE (by the authors)

- We need to consider that if we taught the use of the PAS, we may increase the levels of MVPA, but must remember that the children may experience generalisation difficulties and a separate set of teaching and learning must be provided to encourage participation. The unfamiliarity and uncertainty of behaviours expected in such an environment may be restricting participation, rather than lack of interest.
- Thus, we must be careful when assuming that the strategy we have introduced in one environment makes sense to the autistic child in an unfamiliar, new environment. We need to consolidate learning and thus the use of strategies in a context that makes sense to the child; therefore, how you play with certain pieces of equipment may remain constant irrespective of where it is happening. However, to effectively support the autistic child we may need to teach the use specifically.
- Individual preference must also be assessed as children may only engage in an activity if they find it appealing or of interest. We cannot impose or manufacture motivation and engagement, merely encourage.
- Therefore offering and teaching how to use a range of activities and resources may prove more successful when promoting MVPA. Autonomy of choice in a situation where the child recognises the expectation of all activities may be vital to increasing MVPA.
- Allowing children to engage with a range of activities and resources in one area, for example having all the options available side by side, may be more successful than having individual areas for specific activities. It may also reduce on the number of times teaching and learning of use may be needed.
- PAS may be seen as a low-tech, low-cost intervention, but when applied individually it not only teaches children how to use particular equipment but supports their generalisation of principles and promotes the maintenance of skills acquired.
- Therefore, if our children are to accrue the benefits of MVPA, which will impact on all aspects of their lives, we must specifically teach the children the expectation of behaviour in as many situations as possible.

Full Reference

Becerra, L.A., Higbee, T.S., Vieira, M.C., Pellegrino, A.J. and Hobson, K., (2021). The effect of photographic activity schedules on moderate-to-vigorous physical activity in children with autism spectrum disorder. *Journal of Applied Behaviour Analysis*. 54(2), pp.744–759.

AN EXPLORATION OF THE OUTDOOR PLAY EXPERIENCES OF PRESCHOOL CHILDREN WITH AUTISM SPECTRUM DISORDER IN AN IRISH PRESCHOOL SETTING

BACKGROUND

Despite recognition of the importance of outdoor play in the healthy development of young children, it is often undervalued in early years' environments such as preschools. This has particular implications for children with autism spectrum disorder (ASD), who not only play outdoors less frequently than their typically developing peers, but have to date been underrepresented in research in terms of how they experience outdoor play. The literature notes that outdoor play differs to indoor play in terms of the opportunities it offers children to engage in social, physically challenging and whole-body sensory play, which is fundamental to growth and well-being. Special consideration therefore needs to be given to designing outdoor play spaces for children with ASD, particularly in the formative early years, as the demands of the environment can prove challenging for children who struggle with lack of structure and predictability.

RESEARCH AIM

The research aimed to promote best practice by exploring the outdoor play experiences of children with ASD in an Irish preschool setting to understand what outdoor play means to them, how they experience outdoor play and how the preschool setting facilitates outdoor play.

RESEARCH METHODS

A multimethod qualitative approach was used to support inclusive participation. The child's voice was captured using projective techniques, observations, semi-structured interviews and focus groups with the children and adults, enabling participants who were non-verbal to take part. Further detail was captured through semi-structured interviews with parents and focus groups with school staff, allowing for

greater insight into the children's unique play experiences and preferences.

Participants were selected through purposive sampling and consisted of six children with ASD (all of whom were enrolled in the preschool's ASD class), six preschool staff (four teachers and two special needs assistants) and five parents (all mothers). The children were all male and ranged in age between 3 years and 7 months and 5 years and 5 months.

RESEARCH FINDINGS

Data were analysed thematically and findings were grouped in terms of three main themes:

- Play as choice and autonomy

When the children were left to their own devices, play emerged in accordance with their individual preferences. In general all of the children engaged primarily in physically active or sensory-rich play consistent with the affordances of the outdoors, which offers a wide open space for movement as well as natural elements. It was noted that children did not spontaneously engage with peers, but participated in parallel or onlooker behaviour, and encountered problems with turn taking and understanding the rules of games. As such, the preschool playground was seen by parents and teachers alike as a vital space for the children to develop fundamental play and social skills.

- Play opportunity

The nature of children's outdoor play was found to be contextually informed, tending to be much less structured and adult-led in the home than the preschool. Play in both settings was dependent on when it was scheduled or made available to the child, and influenced by social norms, values and expectations regarding play. Parental understanding of 'appropriate' play

behaviour restricted the children's play at home and in the community, while the preschool was seen as a means of teaching play skills in a safe environment.

- Power of play

The children generally enjoyed outdoor play, which had an impact on their mood and behaviour. Parents described how their children smiled and laughed and often appeared in a world of their own when engaging in outdoor play. Staff at the preschool described the children as being much calmer, less impulsive and more tolerant after time spent playing outdoors. Similarly, when they had not been able to play outdoors, the children were reported to be more agitated, aggressive and disruptive.

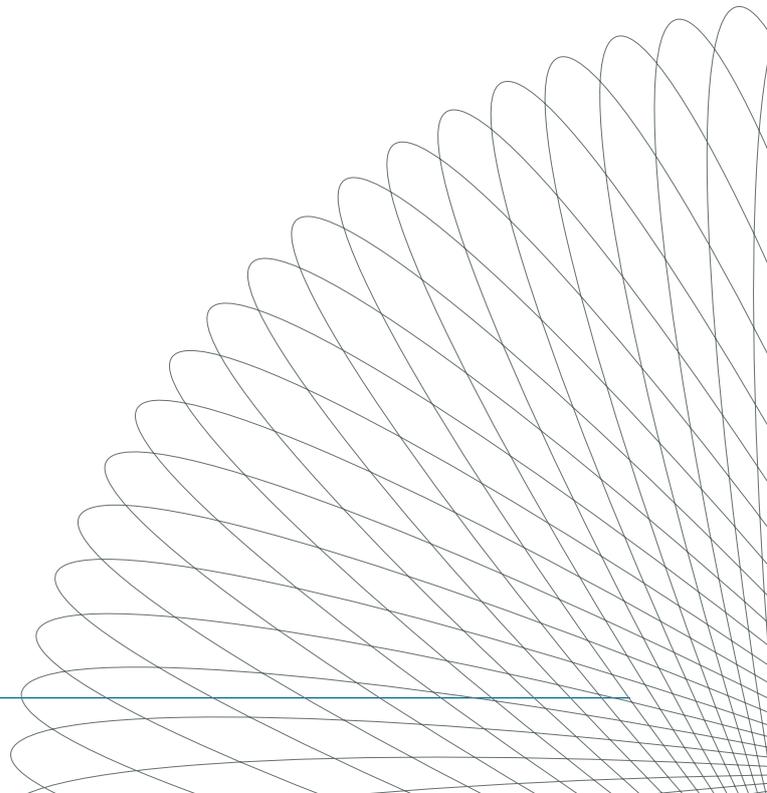
IMPLICATIONS FOR PRACTICE (by the authors)

The authors note that the study supports the argument for a greater focus on outdoor play for all children – including those with ASD. They argue that while physical play tends to be well represented in playground design, more of an effort should be made to cater to other types of play, for example sensory, which are of equal value. Lastly, the authors suggest that more research be done in terms of the complex challenges faced by children with ASD in accessing outdoor play and how these may be overcome. They conclude that the focus should not be on so-called limitations experienced by autistic children, but rather on creating stimulating and inclusive outdoor play environments that expand their repertoire of play skills.

The authors address the limitations of the study, which include its small sample size, the inclusion criteria of participants, the selection of the school and the scope of the research. They suggest means of overcoming these in future studies, such as employing a larger sample size, including a broader range of participants (children without communication limitations, girls, fathers), extending to different schools, homes and community contexts, and taking a more longitudinal approach.

Full Reference

Blake, A., Sexton, J., Lynch, H., Moore, A. and Coughlan, M., (2018). An exploration of the outdoor play experiences of preschool children with autism spectrum disorder in an Irish preschool setting. *Today's Children Tomorrow's Parents*. No. 47–48, pp.100–116.



'FOREST SCHOOL IS MUDDY AND I LIKE IT': PERSPECTIVES OF YOUNG CHILDREN WITH AUTISM SPECTRUM DISORDERS, THEIR PARENTS AND EDUCATIONAL PROFESSIONALS

BACKGROUND

Forest School has grown in popularity across Europe since its introduction in Sweden in the 1950s. The concept, which uses the natural environment to foster practical and academic skills in children, has made its way to the UK where it is increasingly common for educational professionals to undergo training and run sessions. Forest School has many perceived benefits, including opportunities for risk-taking, independence, self-esteem and physical development. To date research is limited, largely anecdotal and lacks a child's perspective – particularly in relation to its application in the special school setting.

RESEARCH AIMS

The research aimed to explore the views of young children identified as having autism spectrum disorder (ASD), their parents and professionals in relation to their Forest School experience.

RESEARCH METHODS

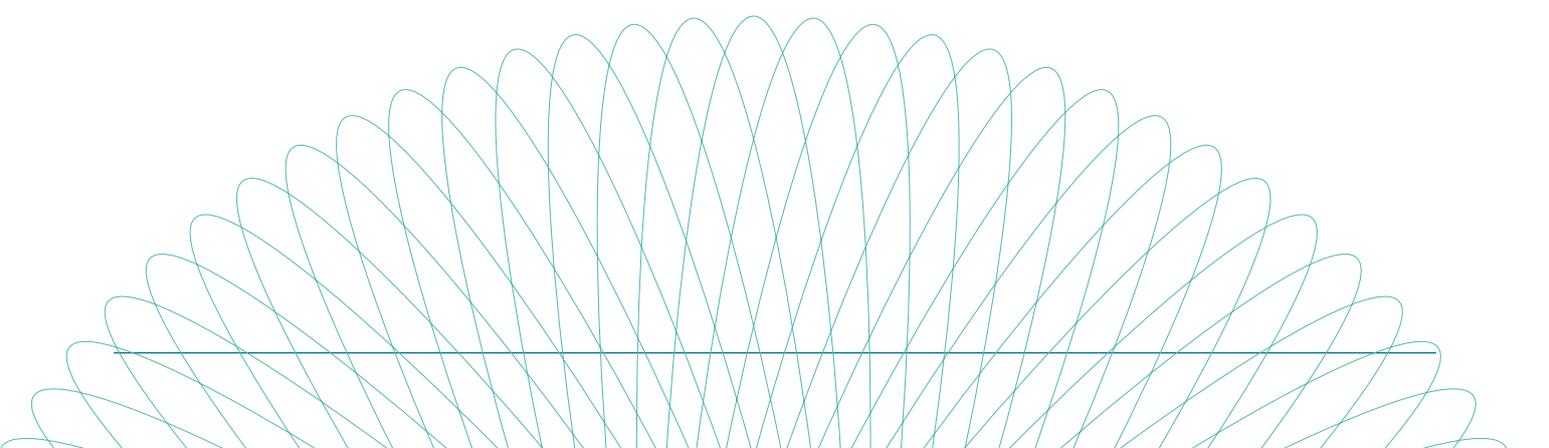
This was a small-scale exploratory study involving four children, three parents and two staff from an inner-city special school. All the children were male, had a diagnosis of ASD as well as additional

severe learning difficulties, and had an average age of 7 years and 5 months. Semi-structured interviews were used to generate qualitative data concerning parents' and professionals' views of Forest School, including the perceived benefits, impact and potential disadvantages. Multiple methods were used with the children to reflect their differing abilities and communication styles, with data collected via video observation, interviews (verbal and visual) and drawings.

Video footage was collected of each child experiencing Forest School over a four-week period, which was edited into a 10-minute clip per child representative of all the activities they engaged in. The children watched their videos and were interviewed with the researcher recording the child's verbal and non-verbal responses. A drawing activity was also used to corroborate the children's responses and ensure the correct understanding of meaning on the part of the researchers.

RESEARCH FINDINGS

Findings from the children's perspective were grouped into three main themes: friends, challenge and risk-taking, and learning outcomes. Forest School represented a time and place to



form friendships and try out new and exciting activities, navigate risks and face fears, while simultaneously increasing their knowledge and understanding of nature. Overall, the children expressed unanimous enjoyment of Forest School.

Almost identical themes were derived from the interviews with parents and professionals, namely: experiencing success, learning outcomes, and challenge and risk-taking. Success was seen in terms of physical gains, social skills and overcoming fears and anxieties. Parents saw their children as more confident in approaching challenges, while the professionals spoke of the value of pushing children's boundaries in a supportive environment. In terms of learning outcomes, the children were seen to problem-solve and demonstrate a greater awareness of the natural environment. Both groups saw a benefit to Forest School and expressed that they would like to continue engaging with it.

IMPLICATIONS FOR PRACTICE (by the authors)

The authors suggest that their study demonstrates the potential benefits of offering Forest School opportunities to young children with ASD, which would be supported by further larger-scale research. They recommend that future research develop the methodologies used to incorporate the voice of children with ASD and other complex needs.

Full Reference

Bradley, K. and Male, B.D., (2017). 'Forest school is muddy and I like it': perspectives of young children with autism spectrum disorders, their parents and educational professionals. *Educational and Child Psychology*. 34(2), pp.80–96.

CREATING OUTDOOR PLAY ENVIRONMENTS TO SUPPORT SOCIAL INTERACTIONS OF CHILDREN WITH AUTISM SPECTRUM DISORDER; A SCOPING STUDY

BACKGROUND

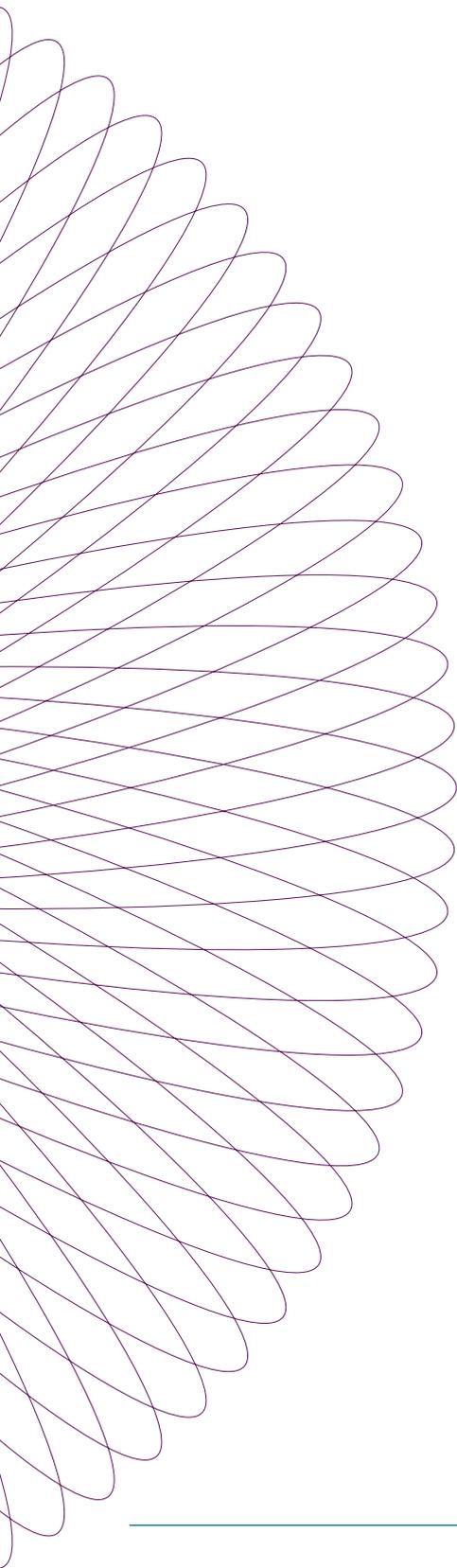
A number of play-based interventions have been found to be effective in helping with social development for children diagnosed with autism spectrum disorder (ASD). Given that autistic children display a large range of variability, the results of play interventions are usually very unpredictable. Research suggests that play environments for autistic children need to be structured in order to be effective. Structured teaching strategies are often used in the absence of well-structured environments. Well-designed outdoor play environments may provide the necessary structure to support social interactions and create an important place where autistic children can learn social skills through play. However, there is little understanding of the design of outdoor play environments that support the social skills development of autistic children.

RESEARCH AIM

The purpose of this study was to explore best practice outdoor-play-environment design strategies that support the social skills development of autistic children.

RESEARCH METHODS

The scoping study involved a review of the literature using Academic Search Premier (EBSCOhost), Scopus and Google Scholar. The literature searches were focused on outdoor-play-environment design, social skill development and autistic children. Searches were conducted using the following words and phrases: ((autism OR ASD OR autism spectrum disorder) AND (playground OR outdoor play environment OR play) AND (social interaction OR social behaviour OR social communication OR social skills)).



RESEARCH FINDINGS

Researchers found that overall there are few studies specific to outdoor play environments. However, they found numerous studies examining the play behaviours of autistic children. They categorised these into four primary areas of impacted development: low motor skills and coordination, sensory integration, generative play and joint attention.

Design opportunities may include easily accessible motor planning activities that may help improve balance and coordination. Other activities such as swinging can have a calming effect for autistic children who are often hypersensitive to movement. The use of loose parts in structured areas of the play environment provides unstructured play within a structured environment that promotes creative and imaginative play. A structured play environment in which sensory cues are clearly organised can help reduce overstimulation.

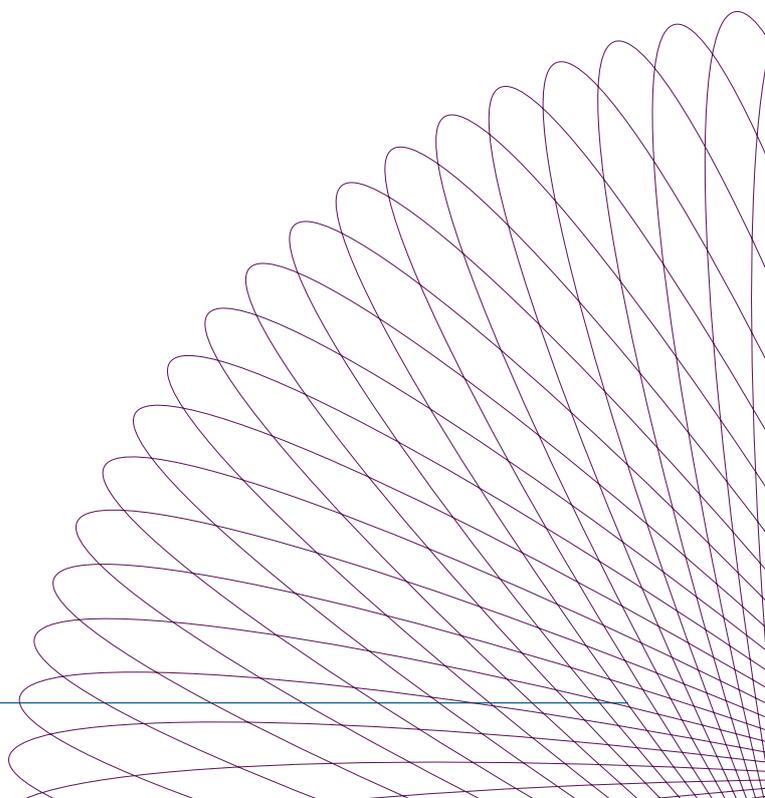
Play scripts in the form of visual cues can indicate how to participate in a play opportunity without being too prescriptive. Music opportunities can help reduce self-stimulation and anxiety, thereby helping children naturally engage in spontaneous play with their peers. Design opportunities that address joint attention and promote social skills development in autistic children include providing opportunities for cooperative types of activities to take place instead of competitive play. Activities that require low physical effort and a low degree of concentration can contribute to joint attention and social skills development in children with autism.

IMPLICATIONS FOR PRACTICE (by the authors)

Addressing these four primary areas of impacted development in the design of outdoor play environments likely plays an important role in creating spontaneous and pleasurable play opportunities for autistic children and may well support social interactions, creating an important place where children with autism can develop social skills through play.

Full Reference

Christensen, K. and Romero, L.P., (2017). Creating outdoor play environments to support social interactions of children with autism spectrum disorder; a scoping study. *Landscape Research Record*. (5), pp. 128–140.



REALISING THE 'RIGHT TO PLAY' IN THE SPECIAL SCHOOL PLAYGROUND

BACKGROUND

The child's right to play and leisure is enshrined in Article 31 of the United Nations Convention on the Rights of the Child (1989), yet its realisation can prove problematic. This is because play as a concept is poorly defined, and debates that revolve around its intrinsic purpose and value see play co-opted to fit various competing narratives. This has particular implications for children with disabilities, such as those with autism spectrum disorder (ASD). ASD is characterised by differences in play and social skills, making play a commonly used criteria for diagnosis and a target area for intervention. Article 31 therefore conceptualises play for children with disabilities in terms of inclusivity, its instrumental value in terms of learning new skills and the necessity of training in play and leisure skills for school-aged children. Important questions surrounding the realisation of Article 31 and the right to play are therefore raised in the context of autistic children's play and the special school playground, including the implications of a segregated play space for children's development and well-being,

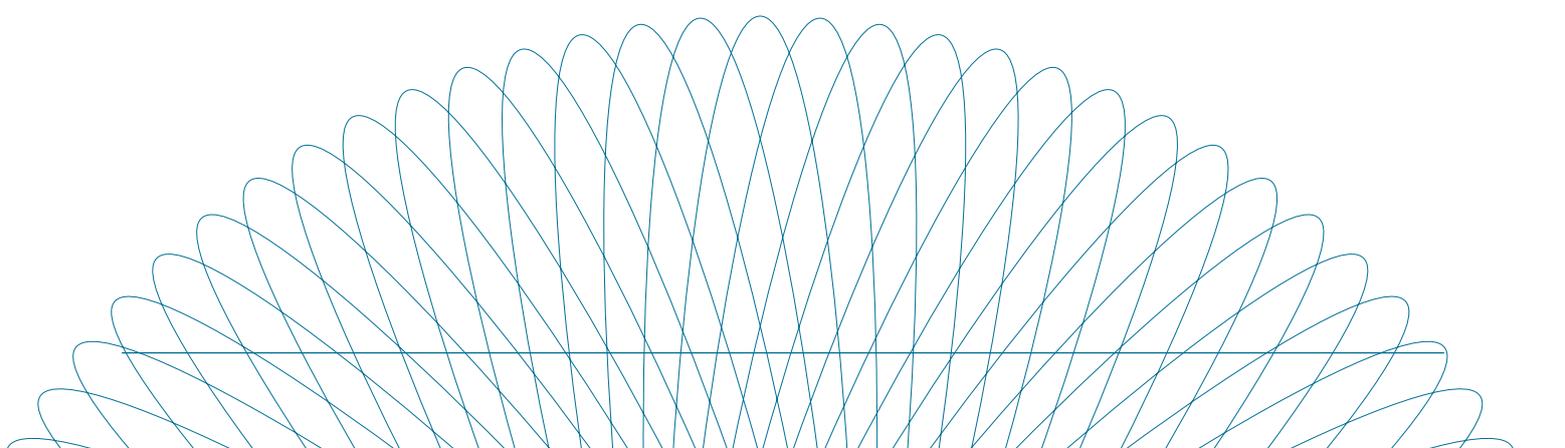
the intrinsic versus instrumental value of play and the validity of non-normative play, which this research explores.

RESEARCH AIMS

The aim of this research was to examine the challenges of realising the right to play within the context of a special school playground.

RESEARCH METHODS

An ethnographic classroom study was undertaken over a period of six weeks and involved five child participants with a diagnosis of ASD, all of whom were minimally verbal. The age range of the children was 6 to 8 years, and included one female and four males. During the process the researcher took on the role of both participant and observer, and employed a range of ethnographic data collection methods including observation, field notes, audio and video recordings (including interviews with staff and parents), photographing classroom artefacts, collecting documents and keeping a reflexive journal.



RESEARCH FINDINGS

It was found that despite almost no use of spoken language or other forms of symbolic communication, the children in the study were able to engage in short play episodes through multimodal forms of embodied communication that allowed them to express a range of feelings, invite or reject play, and negotiate the use of space and resources during the play period. The short play episode chosen for analysis – a 90-second clip of a game entitled Squash Me!, demonstrated the complexity of non-verbal play, with the researcher observing instances of acceptance, cooperation, resistance, pleasure and frustration within this brief period.

The play episode was discussed in terms of Parten's stages of play with examples of associative, solitary and onlooker play observed, but was more difficult to categorise in terms of Hughes' taxonomy as many of these play types (e.g. fantasy, imaginative, socio-dramatic) presuppose spoken language. The Squash Me! game most closely aligned with what Hughes would describe as rough and tumble or exploratory play, and this was representative of the wider play interactions that took place in the outdoor space. These were typically simple games featuring embodied action such as jumping or chase and involved almost no spoken language or symbolic communication. Children were encouraged by staff to use alternative communication practices such as Makaton (a simplified form of sign language for people with learning disabilities) or Picture Exchange Communication System (PECS), but otherwise their intervention was minimal.

IMPLICATIONS FOR PRACTICE (by the authors)

The author notes that practitioners should aim to protect the child's right to 'freely chosen' play, which includes solitary and non-normative play, and reflect critically on the impact the absence of peers without disabilities and the lack of symbol-based resources has on the range of experiences available to autistic children and children with disabilities in order to more fully support their right to play.

Full Reference

Doak, L., (2020). Realising the 'right to play' in the special school playground. *International Journal of Play*. 9(4), pp. 414–438.

NOW, BEING, OCCUPATIONAL: OUTDOOR PLAY AND CHILDREN WITH AUTISM

BACKGROUND

Play is the primary occupation of all children; however, there is concern that outdoor play is declining, especially for autistic children and children with disabilities as much of their time can be spent engaging in therapeutic or rehabilitative activities rather than self-directed play. Therefore a focused investigation to better understand the evolving nature of outdoor play is needed.

RESEARCH AIMS

This study aimed to explore the outdoor play preferences of five autistic children aged 6 to 9 years attending the same school. Specifically, the authors wanted to find out:

1. the outdoor play occupations and environments of the children in the schoolyard and a community playground.
2. how the social and physical environment contributes to the play of these children.

RESEARCH METHODS

A qualitative methodology was used, drawing from ethnographic principles. Eight participants were recruited from one primary school in Ireland: five children aged 6 to 9 with a diagnosis of autism, and three school staff members (one teacher and two SNAs). The children were the primary participants in this study, while the staff provided additional information to develop a deeper understanding of the children's outdoor play preferences.

Multiple methods of data collection were employed over a two-month period, including interviews, picture elicitation, observations and behavioural mapping. Thematic analysis was used to analyse data.

RESEARCH FINDINGS

Across both environments (school and community) three core themes were identified relating to play form, play environments and play challenge. The children in this study enjoyed many forms of outdoor play. Their preferences were for active play with varied sensory elements including running, jumping, swinging, climbing and sliding. Play occupations with opportunities for challenge, mastery and engagement in risky play were particularly favoured, alongside preferences for imaginative play, play with natural components and social interaction. Play engagement was most evident in environments with higher play value.

The most preferred play occupations involved playing on large playground components such as those available in the local community but not in school. In contrast, play preferences in the school included more imaginary play and group games. This study confirmed the environment–occupation connection: that different environments afford different types of play, thus preferences varied across environments.

In this study the children engaged in less risky play in the schoolyard in comparison to the community playground. The authors noted the schoolyard lacked the physical components to provide the opportunity for risky play. In addition, risky play was limited in the schoolyard due to the restrictions applied from school policy. From the data it was clear that while the schoolyard was built to provide space for play, it was not high in play value: the space lacked play components and the staff needed to apply rules that limited freedom to play for safety reasons.

IMPLICATIONS FOR PRACTICE (by the authors)

This study generated knowledge of the outdoor play preferences of a group of autistic children and the impact that the environment has on promoting or impeding play for the sake of play.

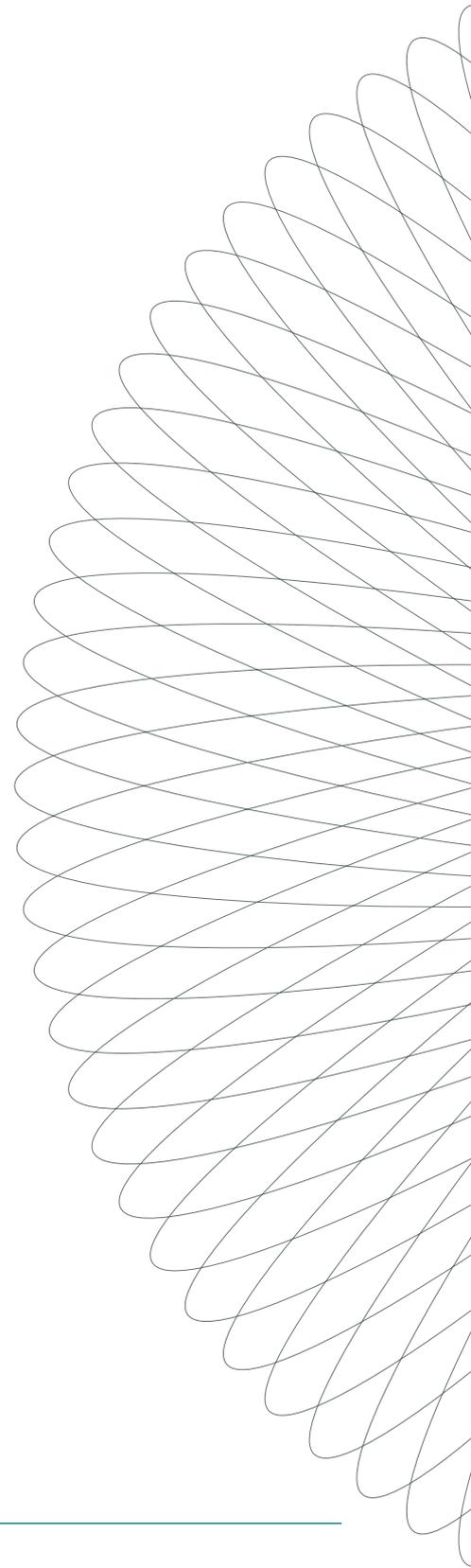
Findings in this study indicate that autistic children may have similar intrinsic motivations to engage in risky and challenging play as non-autistic children.

The children in this study preferred play that offered enjoyment, mastery and an element of risk. All these play forms were best enhanced by play spaces that were spacious, had varied slopes, shelters, access to nature and play components such as swings, slides and climbing walls.

To promote play for the sake of play it is imperative that school outdoor play spaces provide play components, be they natural or man-made, that offer opportunities for challenging physical movements and sensory input.

Full Reference

Fahy, S., Delicâte, N. and Lynch, H., (2020). Now, being, occupational: outdoor play and children with autism. *Journal of Occupational Science*. 28(1), pp.114–132.



INFLUENCE OF NEIGHBORHOOD ENVIRONMENT ON PHYSICAL ACTIVITY PARTICIPATION AMONG CHILDREN WITH AUTISM SPECTRUM DISORDER

BACKGROUND

Guidelines in America recommend that children and young people should engage in 60 minutes of daily physical activity (PA) at a moderate-to-vigorous level. Research indicates that the majority of children with autism spectrum disorder (ASD) are not meeting this standard and are much less likely to engage in PA than their peers who do not have ASD.

Most research into PA focuses on the personal factors affecting engagement in PA, yet environmental factors are increasingly recognised as an important factor in participation. The authors refer to Bronfenbrenner's Social Ecological Model, and how different levels of an individual's environment impact their behaviour. Environmental factors that can affect participation in PA include neighbourhood facilities (paths, parks, playgrounds), neighbourhood social support and neighbourhood safety. The latter is particularly important as parents are less likely to encourage their children to engage in PA if they perceive the neighbourhood to be unsafe; whereas PA participation increases when there is good support from family and friends.

Children and young people with ASD often experience more barriers to engagement in PA due to differences in social communication, the need for increased social support, difficulties in motor coordination and sensory differences

that may cause them to become overwhelmed in playground and park environments.

The authors highlight a need to research the impact of neighbourhood factors on the PA of children and young people with autism due to their unique differences and the potential influence of the neighbourhood on their PA behaviours.

RESEARCH AIMS

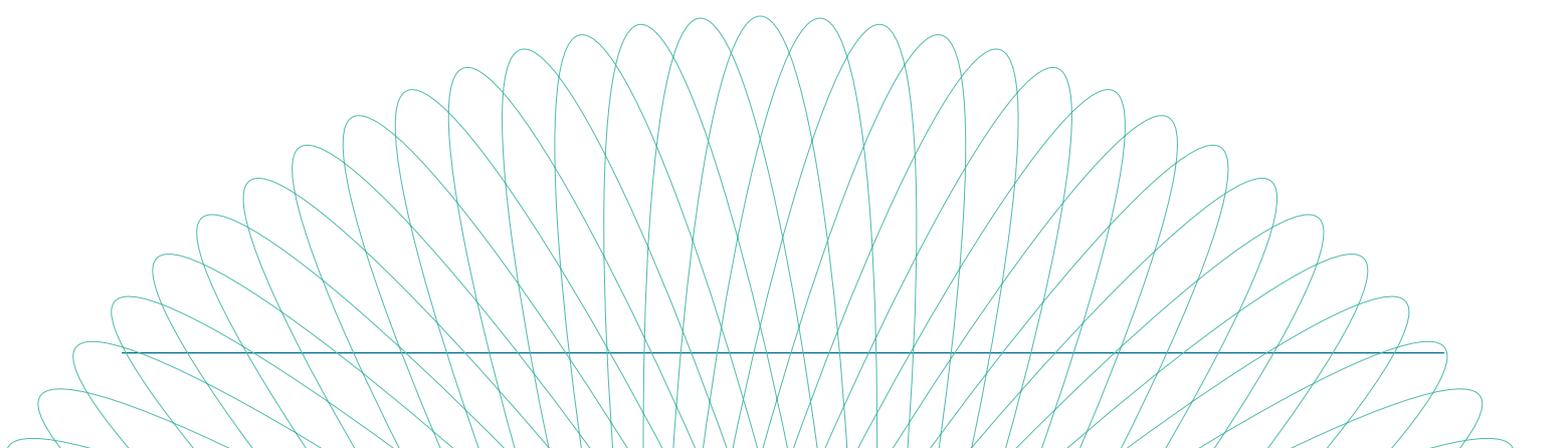
The overall aim of the study was to examine the relationship between various neighbourhood factors and participation in PA between children and young people with and without ASD.

Key research aims were:

- to examine the extent to which the built environment contributes to PA in children with and without ASD.
- to examine the extent to which neighbourhood safety contributes to PA engagement.
- to examine the extent to which neighbourhood support contributes to PA engagement.

RESEARCH METHODS

The researchers carried out a secondary analysis of the data collected by the National Survey of Children's Health (NSCH). Parents and guardians of children aged 0–17 years living in the United States of America were randomly selected to



receive a postal survey. The current study used a sample of 15,438 children aged between 6 and 17 years, of which 494 were reported to have a diagnosis of ASD.

Three neighbourhood-related variables were created to include:

1. built environment – this included survey items about the presence of footpaths, parks, playgrounds and community facilities such as a community centre and library.
2. neighbourhood safety – this included survey items about litter, poorly kept housing, vandalism and graffiti. Respondents were also asked to ‘definitely agree’, ‘somewhat agree’, ‘somewhat disagree’ or ‘definitely disagree’ to the statement ‘This child is safe in our neighbourhood’.
3. neighbourhood support – respondents were also asked to ‘definitely agree’, ‘somewhat agree’, ‘somewhat disagree’ or ‘definitely disagree’ to the statements ‘People in this neighbourhood help each other out’ and ‘We watch out for each other’s children in this neighbourhood’.

The dependent variable was the level of engagement in PA. The survey asked how many days a week the child engaged in at least 60 minutes of PA, and then the researchers coded the response as ‘Active’ for those who responded 1–7 days and ‘Inactive’ for those who responded 0 days.

RESEARCH FINDINGS

The majority of children had footpaths and a playground or park in their neighbourhood but less than 50 per cent had a recreation centre. Most children were reported to live in safe neighbourhoods with good neighbourhood support.

The presence of a park or playground was a significant factor for engagement in PA for children without a diagnosis of ASD but was not a significant factor for children with ASD.

Parental perception of neighbourhood safety is an important factor in participation in PA. Children are more likely to engage in PA if parents perceive the neighbourhood to be safe.

Neighbourhood support was a more important factor in PA engagement for those without ASD, with children more likely to participate in PA where good support was reported. However, neighbourhood support did not affect the levels of engagement among children with ASD.

IMPLICATIONS FOR PRACTICE (by the authors)

- The presence of a park or playground, feeling safe in a neighbourhood and living in a neighbourhood where people help each other were all factors that increased the likelihood of children without ASD engaging in PA. Neighbourhood safety was the only factor that affected PA participation for children with ASD.
- It is not clear why the built environment is not reported as an important factor in PA engagement for children with ASD. The authors suggest that it may be due to the different way in which children with ASD interact with the environment. Previous studies have found that autistic children engage in less social play and are less likely to use playground equipment functionally.
- Differences in sensory processing may also affect how autistic children and young people use the built environment. Playgrounds and parks may be too overwhelming due to sensory sensitivities, or the equipment may not meet sensory preferences. They therefore do not use community facilities as they do not meet their needs.
- A lack of staff who are knowledgeable about autism may be a factor in children with ASD not accessing recreation centres and playgrounds.
- Future students should examine the factors that will support children with ASD to use playgrounds, parks and other facilities in the neighbourhood.
- Playgrounds should be sensory friendly, offer an appropriate level of physical challenge, support structured and imaginative play, and ensure inclusion and accessibility for all.
- Community members should be involved in the planning of facilities in their neighbourhood.
- Parents are less likely to allow their children, with or without ASD, to engage in PA if the neighbourhood is perceived to be unsafe. Increasing safety factors will therefore be important to improve engagement in PA.
- The self-injurious behaviours (head banging, hair pulling, skin scratching) of some children with ASD may further impact parental perception of neighbourhood safety, and they may further restrict the child's participation in PA due to safety concerns.
- Neighbourhood support may be a less important factor in PA for children with autism because parents may be more protective and not leave their child with family and friends, or others may find it difficult to adequately support their needs. Many parents of children with ASD report that their children require too much supervision to participate in PA.
- The authors acknowledged some limitations to their study and suggested that future research should have the diagnosis of ASD in study participants confirmed by a doctor, postal codes should be included to examine the impact of location on PA and that PA engagement should be directly observed instead of relying on parental report. The different levels of intensity of PA and their relationship with environmental factors could also be studied.

Full Reference

Fiscella, N.A., Case, L.K., Jung, J. and Yun, J., (2020). Influence of neighborhood environment on physical activity participation among children with autism spectrum disorder. *Autism Research*. 14(3), pp. 560–570.

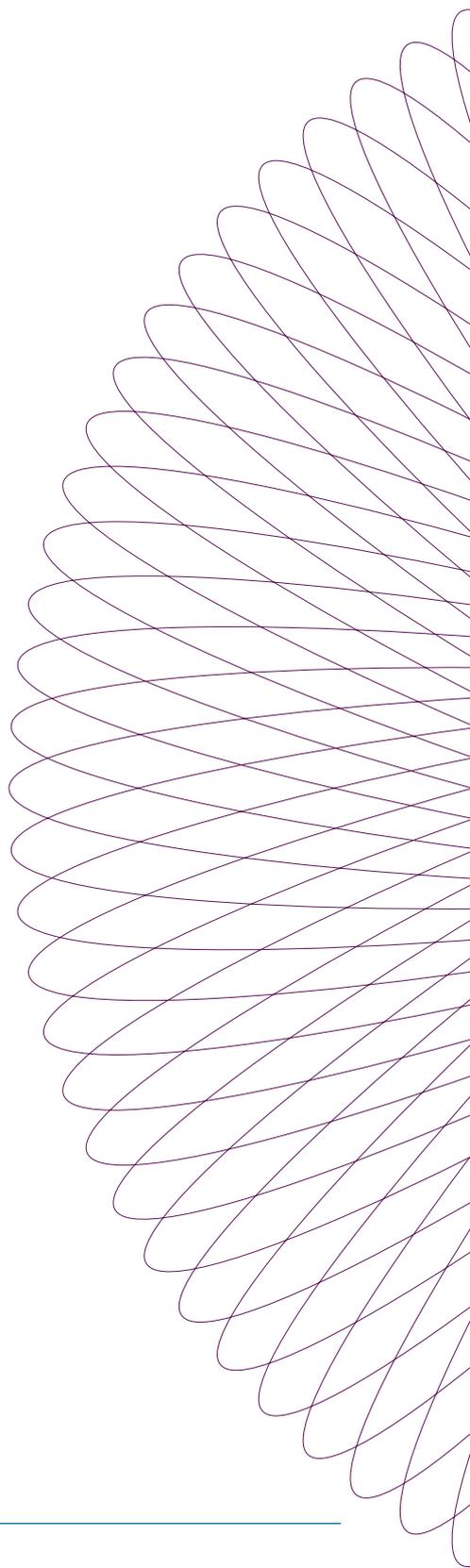
THE GAMES THEY PLAY: OBSERVATIONS OF CHILDREN WITH AUTISM SPECTRUM DISORDER ON THE SCHOOL PLAYGROUND

The school playground represents a key environment for children to socialise, form friendships, exercise and develop play skills; all of which are especially important for children with autism spectrum disorder (ASD). This is because ASD is characterised by impairments in social, communication and regulation skills that can be developed during outdoor playtime (referred to in this article as ‘recess’), but which impact on children’s ability and motivation to engage in play. For instance, studies show that children with ASD often exhibit higher levels of stress and engage in self-stimulatory behaviours (stimming) when interacting with peers that can lead to negative experiences and social exclusion, resulting in children with autism spending more time in solitary activity than other children. These children therefore tend to be on the periphery of play activities, have decreased interactions and engage in less physical activity than their peers. To date research looking at the playground behaviours of children with ASD tends to be quantitative, for example measuring peer engagement using observational tools. There is, however, a lack of qualitative investigation to capture the nuance of children with autism’s playground behaviour. This research sought to address this gap.

RESEARCH AIMS

The research had four aims:

- To describe the playground activities that autistic children participate in during recess.
 - To examine the social communication of autistic children during recess.
 - To examine the association between self-stimulatory behaviour and the activities of autistic children in the playground.
 - To examine how affect was associated with peer engagement for autistic children.
-



The researchers detailed their predictions as follows:

- Autistic children would engage more in solitary activities than in joint attention activities.
- Autistic children who had higher peer engagement would have more social communication interactions.
- Autistic children would be more likely to display self-stimulatory behaviours while participating in solitary activities as opposed to jointly engaged activities.
- Autistic children would experience more positive affect when jointly engaged.

RESEARCH METHODS

The study involved 55 school-aged children with a diagnosis of ASD ranging from kindergarten to fifth grade in American public elementary schools (average age: 8.68 years). The participants were mostly male (84 per cent) and white (55 per cent), but included African American (25 per cent), multi-racial (9 per cent), Asian (5 per cent), Hispanic/Latino (4 per cent), and other (2 per cent) ethnicities.

To gather the data, the Playground Observation of Peer Engagement (POPE) interval coding system was used by independent observers who documented each child's engagement and social communication with peers in the playground. Engagement states were measured through the percentage of intervals children spent in solitary play, while social communication was measured via initiations (successful and unsuccessful) and responses (appropriate and missed). Each interval also included qualitative data, providing further detail on the child's playground behaviour as well as comments from the observer. These comments were carefully examined for trends and used to complement the quantitative data.

RESEARCH FINDINGS

The research findings were grouped into four themes: activities, social communication, self-stimulatory behaviour and affect.

- **Activities** – Autistic children spent 25 per cent of the time in solitary engagement and 30 per cent of the time in joint engagement. Solitary activities were categorised as (1) peripheral (2) object-focused play (3) motor-oriented (4) adult engagement (5) academic-focused and (6) singing (Table 1).
- **Social communication** – The success rates of initiations and responses for autistic children were 80 per cent and 72 per cent respectively. Social communication mostly occurred when the autistic child was jointly engaged in an activity and most frequently took the form of conversations with peers.
- **Self-stimulatory behaviour** – These behaviours, categorised as motor, sensory and vocal, were relatively infrequent and most commonly occurred when autistic children were engaged in solitary activities. Motoric self-stimulatory behaviours (e.g. flapping, fidgeting) were the most frequently observed, in an average of 53 per cent of participants. Sensory was next at 36 per cent, followed by vocal at 13 per cent.
- **Affect** – A range of affects were observed during the intervals, and the children with ASD most frequently demonstrated a neutral affect (46 per cent) in the playground. Most of the children exhibited neutral affect during a solitary activity. Positive affect (44 per cent) was observed in both solitary and joint activities, while 9 per cent of children with ASD displayed negative affect in their play (although this notably lasted a shorter period of time than instances of positive and neutral affect).

Solitary	Average duration (min)	Percentage of participants	Joint engaged	Average duration (min)	Percentage of participants
<i>Peripheral</i>	4.44	56	<i>Talk to peers</i>	2.17	45
Sit or stand on periphery	6.42	36	<i>Playground Games</i>	4.67	24
Observe or look around	2.76	35	Tag or chase	4.50	13
Eat alone	6.92	29	Board games	8.50	4
Lay down or nap	1.67	5	Eeny meeny miny mo	1.00	2
			Hide and seek	1.00	2
			Duck duck goose	7.00	2
<i>Object-focused play</i>	4.78	40	Rock paper scissors	5.00	2
Play on structure	10.00	25	Hand games	4.00	2
Play with toy	2.00	13	Hopscotch	5.00	2
Play with nature	2.33	9	Four square	5.00	2
<i>Motor-oriented</i>	1.96	38	<i>Ball games</i>	8.30	20
Wander	1.56	29	Basketball	7.33	5
Run alone	2.29	13	Kickball	10.50	5
Skip	1.00	4	Soccer	14.00	4
Dance	3.00	2	Ball tag	4.00	4
			Volleyball	4.00	2
<i>Adult engagement</i>	2.22	20	<i>Miscellaneous</i>	3.62	16
			Play with toy	4.25	9
			Structure	9.67	5
<i>Academic-focused</i>	7.83	9	Dance	2.20	5
Read	2.50	4	Wrestle	1.00	2
Play on laptop	15.00	2	Sing	1.00	2
Homework	6.00	2	<i>Pretend-play</i>	6.67	5
<i>Singing</i>	1.00	2	Act like robots	2.00	2
			Pretend to be a lion	13.00	2
			Pokémon game	5.00	2

Note: Italics indicate larger categories of solitary and joint engaged activities.

IMPLICATIONS FOR PRACTICE (by the authors)

The authors note that the results of the study may be important for increasing involvement with peers and informing intervention types for autistic children. Findings presented in the paper highlight areas where autistic children may need support in the playground and they can also be applied to create an inclusive classroom environment and inform best practice for educators, parents, clinicians and caregivers.

The limitations of the study are acknowledged, including the lack of diversity among the participants, which could be addressed in future studies.

Full Reference

Gilmore, S., Frederick, L.K., Santillan, L. and Locke, J., (2019). The games they play: observations of children with autism spectrum disorder on the school playground. *Autism*. **23**(6), pp. 1343–1353.

EXPOSURE TO NATURE FOR CHILDREN WITH AUTISM SPECTRUM DISORDER: BENEFITS, CAVEATS, AND BARRIERS

BACKGROUND

Autism spectrum disorder (ASD) is the fastest-growing developmental disorder worldwide. A small number of studies have explored how the physical environment affects health and behavioural outcomes for autistic children, mainly in terms of building and classroom design, but recently this focus has shifted towards outdoor settings and the impact of the natural environment on the development of social and cognitive skills among this population. Evidence of the benefits of nature exposure in autistic children is scarce; however, it is known to influence health outcomes in both neurotypical children and children with other developmental disorders including attention deficit hyperactivity disorder (ADHD). These outcomes include reduced stress, emotional resilience, improved cognitive functioning and opportunities for functional and imaginative play. Unfortunately a lack of understanding around how to create inclusive play spaces for autistic children limits their access to natural outdoor spaces, creating barriers to these benefits.

RESEARCH AIMS

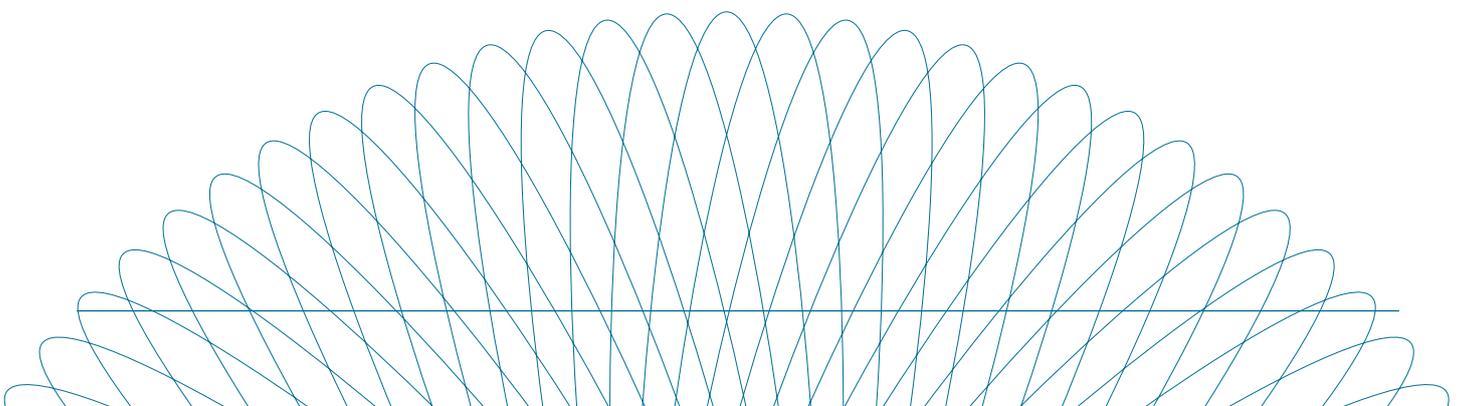
The study aimed to document the benefits of nature exposure for autistic children as perceived by their parents and caregivers, as well as the barriers to accessing these benefits.

RESEARCH METHODS

This research was conducted with parents and caregivers of autistic children in two diverse Chinese cities: Shanghai (population of 24 million, 8 m² of green space per capita) and Yantai (population of 7 million, 20 m² of green space per capita). Participants were recruited from autism centres and teaching facilities for children with developmental disorders through a combination of convenience and snowball sampling and invited to take part in semi-structured interviews. To be eligible participants had to be parents or caregivers of a child aged 4–18 years with a formal diagnosis of ASD and have lived in the same household with that child for the last two years. A total of 22 interviews were conducted (18 mothers, 2 fathers and 2 grandmothers), which took place one-on-one with a bilingual Chinese–English researcher and lasted between 42 and 79 minutes. Of the children, 18 were boys and 4 were girls, and their mean age was 9.5 years.

The questions included:

- How often does your child go outdoors?
- Is green space (e.g. neighbourhood parks, urban parks and plazas, forests and other suburban and rural scenic areas) a part of his or her outdoor experience?



- Please describe the last time you took your child to a green space.
- What are the benefits of visiting green space to your child?
- What are the barriers that may prevent you from taking your child to a green space? What are your concerns?

RESEARCH FINDINGS

The findings related to the benefits of nature as perceived by the parents and caregivers, and the barriers to children accessing green spaces. Participants identified sensory-motor, emotional and social benefits, but also some adverse effects. In terms of the benefits, the children were said to be captivated by loose parts play using natural elements (20 out of 22 parents) and were more engaged while in wild environments (15 out of 22 parents). The children showed a preference for natural equipment with strong vestibular input (i.e. that spins, rocks or swings) such as swings, hideouts, slides and climbing structures (10 out of 22 parents), and used green areas to engage safely in individual sports. The main concern noted was that the play was not meaningful. Parents observed that their children were more relaxed and less stressed and anxious in natural spaces (13 out of 22 parents), but exposure to this environment did not seem to prevent what they called ‘tantrums’.

Opportunities for social interactions were increased in natural spaces (13 out of 22 parents), however many parents and caregivers were frustrated at their child’s inappropriate social behaviours (20 out of 22 parents) including ‘tantrums’ (13 out of 22) and ‘odd behaviour’ (6 out of 22 parents). These emerged as barriers to accessing play in nature along with safety concerns around traffic (16 out of

22 parents), wandering and elopement (6 out of 22 parents), tripping and falling (6 out of 22 parents), bullying (5 out of 22 parents) and stranger danger (2 out of 22 parents). Parents were also concerned about the unpredictable nature of the outdoor environment triggering phobias in their children, while social exclusion (12 out of 22 parents) and the judgement of others (8 out of 22) were recurring barriers.

The authors noted additional barriers not related to ASD as too much TV and computer time (5 out of 22 parents), being bored in nature (4 out of 22 parents) as well as time constraints (4 out of 22 parents) and financial burdens (2 out of 22 parents).

IMPLICATIONS FOR PRACTICE (by the authors)

The authors note that the needs of autistic children have been neglected in terms of public place making. Based on their findings they recommend that the principles of universal design be implemented in parks and open spaces. They suggest that replacing prescriptive play equipment with loose parts materials would make public spaces more inclusive and accessible by inviting a wider range of acceptable behaviours. The authors note the unique environmental conditions present in their study, and recommend future studies take place within different cultures to substantiate and compare findings.

Full Reference

Li, D., Larsen, L., Yang, Y., Wang, L., Zhai, Y. and Sullivan, W.C., (2019). Exposure to nature for children with autism spectrum disorder: benefits, caveats, and barriers. *Health and Place*, 55, pp. 71–79.

EXAMINING PLAYGROUND ENGAGEMENT BETWEEN ELEMENTARY SCHOOL CHILDREN WITH AND WITHOUT AUTISM SPECTRUM DISORDER

BACKGROUND

Recess is a unique time of the school day in which children get to engage in freely chosen play and practise social skills. Children with autism spectrum disorder (ASD) often struggle with social engagement in the school playground and feel disconnected from their peers. This leads to poorer social outcomes for autistic children compared to neurotypical children. While playground observations have given insight into the social behaviours of autistic children, there is no comparative data for children in general education, making it difficult to determine the efficacy of playground interventions targeting social engagement.

RESEARCH AIMS

The aim of this study was to compare autistic and non-autistic children during recess to determine:

- levels of peer engagement,
- initiations and responses to peers, and
- characteristics of both groups that may be associated with more or less social behaviour during recess.

RESEARCH METHODS

Participants were selected from a randomised-controlled trial examining the effects of targeted social interventions on autistic children (Autism Intervention Research–Behavioral (AIR-B) network, 2008–2011). To be included in the research children had to be referred by school administrators, have a formal diagnosis of ASD, a documented non-verbal IQ of 65 or higher, be aged between 5 and 12 years and spend at least 80 per cent of the school day in a general education classroom. Fifty-one children meeting this criteria were selected (9 female, 42 male)

with an average age of 8.12 years and an average IQ of 86.88. Teachers nominated an additional 51 children to serve as peer models for the autistic cohort, matched where possible on classroom, grade, age, ethnicity and gender.

All children were observed using the Playground Observation of Peer Engagement (POPE) – a timed-interval behaviour coding system, as well as completing a friendship survey to build a picture of peer social groups. Each child was then assigned a social centrality score based on their prominence in the classroom social structure. Observations for both the ASD and peer-matched groups took place in the same playground conditions and were conducted during the normally scheduled recess period. The researchers did not engage with children during observation and school staff were instructed not to interact or facilitate play with the children during this time.

RESEARCH FINDINGS

The social network centrality scoring data showed that a total of 9 autistic children were isolated (no social connections in the classroom), 22 were peripheral (bottom 30 per cent of social connections in the classroom), 15 were secondary (middle 40 per cent of social connections in the classroom) and 3 had nuclear social status in their social networks (top 30 per cent of social connections in the classroom).

The POPE results revealed considerable variability in the children's playground engagement, but as expected autistic children had lower levels of engagement than their matched peers. They spent 30 per cent of the total intervals solitary or unengaged compared to 9 per cent of the matched peer group, and 40 per cent jointly engaged with their peers compared to 70 per cent. Similarly, autistic children had fewer successful

initiations with peers during recess and fewer initiations overall (including positive responses and opportunities to respond).

IMPLICATIONS FOR PRACTICE (by the authors)

The findings from this study show that many autistic children are successfully engaging with their peers in inclusive settings without intervention. According to the authors future studies should explore the characteristics of these children to determine specific profiles, as well as the environmental supports that may be needed to promote the social engagement of autistic children.

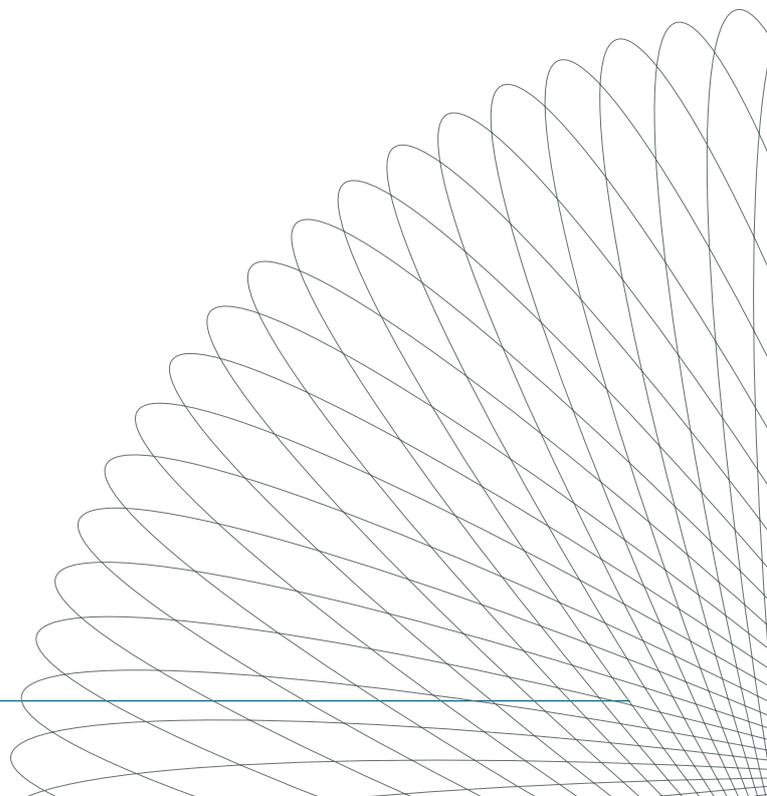
The authors make a number of recommendations:

1. The time autistic children spend in solitary activities should be closely monitored to determine why they are unengaged, and better support should be given to those who are socially motivated to interact with peers but lack social skills.
2. A target percentage for time spent in joint engagement may be a reasonable intervention objective (this study identified 53 per cent as the cut-off point that differentiates autistic children from their peers).
3. Autistic children may need additional support in initiating and responding to peers.
4. More playground-based social skills interventions are needed to determine appropriate strategies to close the gap between autistic children and their peers.

They conclude that these data may be vitally important in setting social engagement goals as school-based interventions become more common.

Full Reference

Locke, J., Shih, W., Kretzmann, M. and Kasari, C., (2016). Examining playground engagement between elementary school children with and without autism spectrum disorder. *Autism*. **20**(6), pp. 653–662.



REMAKING RECESS INTERVENTION FOR IMPROVING PEER INTERACTIONS AT SCHOOL FOR CHILDREN WITH AUTISM SPECTRUM DISORDER: MULTISITE RANDOMIZED TRIAL

BACKGROUND

Differences in social communication and interaction are a common feature of autism spectrum disorder (ASD), and as a result autistic children often report feeling lonely and isolated at school. Despite this, there is a lack of social skills interventions within the school context. There is therefore a prevailing need for interventions that can be delivered effectively by staff in public schools. Interventions can be delivered by researchers or school personnel – generally with positive outcomes, but there is not yet enough research to affect long-term and sustainable gains in this area. Studies report that paraprofessionals are best placed to deliver social interventions for autistic children and can do so with a high degree of fidelity as they have both close proximity to and responsibility for students in the playground.

RESEARCH AIM

The aim of this research was to evaluate the Remaking Recess (RR) social skills intervention.

RESEARCH METHODS

A total of 80 elementary school students and 78 personnel were recruited from across 3 large urban school districts in the United States. Included students had to be aged between 7 and 11 years old, meet the Autism Diagnostic Observation Schedule research criteria for ASD and spend at least 51 per cent of the school day in the general education classroom. Those chosen were predominantly male, ethnically diverse, and low to average IQ. Participating personnel were mostly female. Participants were randomly assigned to the immediate RR treatment group or to a wait-list (WL) control.

Personnel were coached by the research team using a process of systemic support fading to integrate intervention strategies supporting social inclusion and to facilitate jointly engaged activities between autistic students and their peers. Coaches taught personnel to:

- identify children who were unengaged in the playground or who had difficulty with peer interaction;
- use strategies to help children engage with each other (e.g. starting age-appropriate games and activities in the playground);
- learn when to facilitate and when to fade support to help children begin and maintain interactions with each other; and
- troubleshoot and refine the intervention.

RESEARCH FINDINGS

Three main findings emerged from the research:

1. Children in the RR intervention did not significantly differ from the control group on peer engagement in the playground at the end of intervention, but the amount of time they were observed in solitary play did decrease. This suggests that children in RR were likely increasing in engagement (moving from solitary to parallel or parallel-aware status) but were not fully engaged in joint games and conversations.
2. Children in the RR intervention improved in their connections in the classroom as reported by classmates, moving from isolation or being peripheral in social groups to being more prominent in those groups.

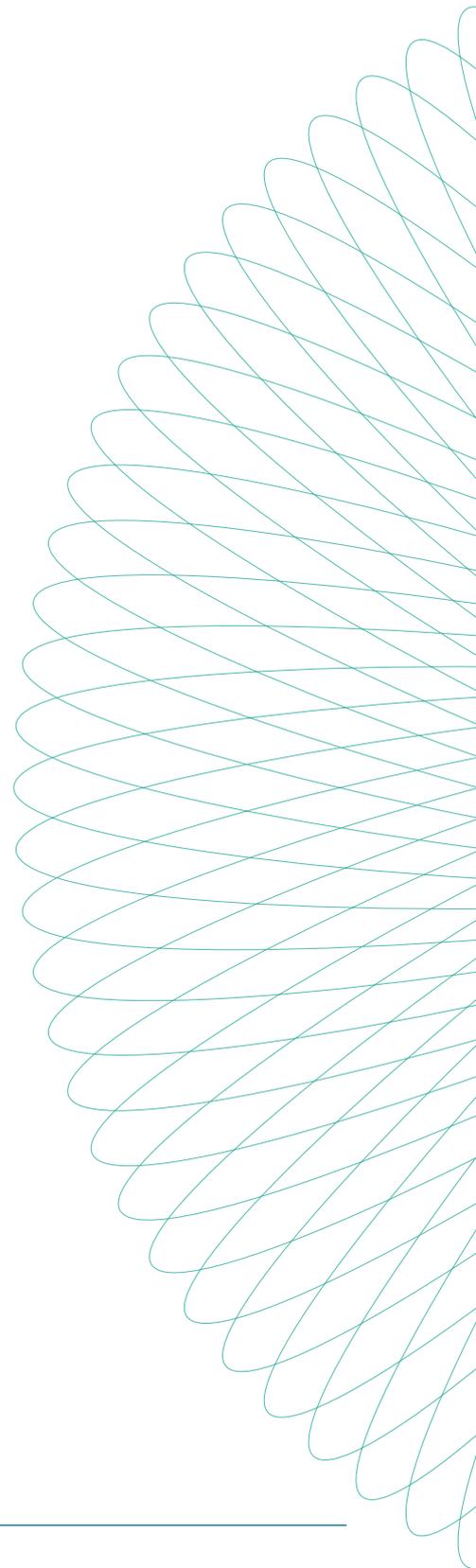
3. Coaches' ratings of fidelity and paraprofessionals' own accounts differed. It was felt that paraprofessionals over-reported their use of intervention strategies and rated them as easy to implement but challenging in a school context that did not support their use of the intervention strategies.

IMPLICATIONS FOR PRACTICE (by the authors)

The authors note that school climate and implementation may be heavily influenced by policy challenges faced by urban schools. They cite fiscal challenges, staff shortages and high adult-to-child ratios as barriers to the successful implementation of the intervention as well as policy, including indoor recess with no talking, no running in the playground, and being 'benched' due to bad behaviour as rules that worked against developing peer relationships. They suggest that future studies incorporate strategies into the intervention that allow for improving peer relationships in non-traditional contexts, such as indoor activities and structured environments.

Full Reference

Shih, W., Dean, M., Kretzmann, M., Locke, J., Senturk, D., Mandell, D.S., Smith, T., Kasari, C., Campbell, J. and Hume, K., (2019). Remaking recess intervention for improving peer interactions at school for children with autism spectrum disorder: multisite randomized trial. *School Psychology Review*. 48(2), pp.133–144.



SPECIAL EDUCATION PROFESSIONALS' PERCEPTIONS TOWARD ACCESSIBLE PLAYGROUNDS

BACKGROUND

Playground equipment and design often fails to meet the needs of individuals with disabilities, excluding them from accessing the same play opportunities as their non-disabled peers. Accessible features are not necessarily usable, and in many cases hold no play value for children with disabilities, for example 'a ramp may exist but no play opportunities exist at the top of the ramp'. It is therefore systemic barriers that impair children from using public parks and playgrounds rather than the disability itself. Research shows the impact the environment has on the quality of children's play and the positive role of equipment in supporting typically developing children. In contrast, children with disabilities are more likely to be marginalised by playground equipment, which often fails to meet their physical and sensory needs and developmental abilities, and singles them out as 'different'. Parents of autistic children in particular note a lack of equipment that meets their child's sensory needs and interests in typical playgrounds, leading to aimless behaviour. As children's play is strongly influenced by their disability status, a greater understanding of the relationship between play behaviours and playground equipment is needed to develop fully inclusive equipment for all abilities.

RESEARCH AIMS

This study wished to explore perceptions of educational professionals towards accessible playgrounds for children with disabilities. It is part of a larger study that is examining social participation of children with disabilities and their peers.

The current study had four main research aims. Firstly, to explore educational professionals' responses to the type of playground equipment

available in their school or local community; secondly, to gain teachers' opinions on students' non-participation in a school or community playground; thirdly, to examine teachers' beliefs about the types of experiences their students have in a playground; and finally, examine their responses as to how they would design a fully inclusive playground for students with disabilities.

RESEARCH METHOD

An anonymous survey was completed by 303 educational professionals including early intervention professionals, early childhood special education (ECSE) teachers and K-6 special education teachers. Participants were mostly female (88 per cent) and Caucasian (57 per cent), and primarily middle-aged (between 35 and 55 years). Their professional experience ranged from more than 10 years (55 per cent), between 5 and 10 years (24 per cent) and less than 5 years (21 per cent).

Researchers administered the Playground Attitude and Perception Survey to gather information on educational professionals' perceptions of their school or community's playground equipment and the participation of children with disabilities in the use of equipment. Participants needed to provide education services to a child with a disability (birth to Grade 6) and/or their family to be included in the study.

Researchers used a content analysis procedure to code the responses from the questionnaire at word or phrase level. One research staff member developed initial categories based on a random selection of 25 per cent of participant answers. Two research staff then reviewed the remaining responses to develop initial themes.

RESEARCH FINDINGS

Findings from the questionnaire showed the most frequent disabilities were autism (87 per cent), specific language impairment (79 per cent) and developmental delay (71 per cent). No professionals reported working with students with visual impairment, deafness or blindness.

Participants reported on equipment currently available in either a school playground or a community playground within 10 miles of their office. Results are shown in the table below:

Activity panels such as tic-tac-toe and spinning wheels had the most frequent response; these reach-range panels are wheelchair accessible. Other frequent responses included steps (98 per cent), slides (92 per cent) and swings (84 per cent). Least frequently reported equipment included wheelchair ramps (4 per cent) and wheelchair swings (0 per cent).

Table 2. Currently Available Equipment on Respondents' School or Community Playground ($N = 303$).

Recreational activity	Number of participants	Percentage of participants
Activity panels	300	99
Steps	297	98
Slide	279	92
Swings	254	84
Tunnels	233	77
Vertical climbers	192	63
Bridges	155	51
Towers	142	47
Toddler swing	101	33
Rock climbing wall	93	31
Incline climbers	87	29
Tire swing	87	29
Swing with safety restraint	69	23
Balance beam	66	22
Monkey bars	65	21
Climbing structure	61	20
Teeter totter	44	15
Musical equipment	35	12
Level ramps	30	10
Wheelchair ramp	12	4
Wheelchair swing	0	0

Note. Participants could respond to multiple categories, so percentages do not equal 100%.

Participants were asked to consider why children with disabilities were not able to fully participate in their school or community's playground equipment. Responses included facility not appropriate (99 per cent), worried about child's safety (93 per cent), not interested (66 per cent), doesn't offer activities child likes (53 per cent), child's peers socially isolate him or her (37 per cent), child receiving related services during outside time (4 per cent), no other kids with disabilities present (1 per cent) and no playground equipment available (1 per cent).

Three themes emerged from the descriptions provided about the types of experiences students have in the school or community playground:

- (a) A need for a playground facility to meet the needs of all students. This included accessible equipment/ramps for students with severe disabilities.
- (b) The segregation that takes place in the playground between children with disabilities and typically developing children. Participants suggested the use of a peer buddy system.
- (c) Accessible playgrounds and how they can be boring to children. Participants highlighted the need for age-appropriate equipment for children under five.

IMPLICATIONS FOR PRACTICE (by the authors)

- This research confirms previous studies that special education professionals view current school and community playgrounds as problematic in meeting the needs of children with disabilities, especially those with sensory needs.
- It highlighted the inclusion of equipment that meets the sensory needs of children such as musical equipment, architectural panels

consisting of vibrant colours and varying textures for tactile needs and smelling plants for olfactory needs.

- Playground developers and equipment companies need to go beyond what is minimally required by law and instead meet the needs of all children, including those with severe disabilities. Suggestions include inviting families who have children with disabilities and special education teachers and health professionals to be involved in the planning and development meetings and encouraging training around child development and special education for playground developers.
- This study reinforced the importance of education professionals making concentrated efforts to promote the social participation of students using peer buddies to connect children with severe disabilities to their typically developing peers.
- This study made recommendations based on other research, such as having trained play workers who can facilitate social interactions between children with and without disabilities and advocating for the importance of including typically developing siblings in supporting social development.
- In addition, the study highlighted the needs for playground toys that support the physical, cognitive and social play of pre-schoolers and children under the age of five.

Full Reference

Stanton-Chapman, T.L. and Schmidt, E.L., (2016). Special education professionals' perceptions toward accessible playgrounds. *Research and Practice for Persons with Severe Disabilities*. **41**(2), pp. 90–100.

CONCLUSION

It is understood that children are happier and healthier when they are given the freedom to engage in physical activity, stimulate their senses and connect with nature through outdoor play. The many benefits of outdoor play include physical exercise, reduced stress, improved focus, enhanced cognitive function and social skills development. For autistic children and young people in particular the outdoor environment teaches essential life skills and provides a therapeutic outlet as well as opportunities to learn and develop through play alongside peers. Researchers and trained school personnel have delivered interventions using outdoor play to target specific areas of development in autistic children to varying degrees of success. However, there is still much to be done in terms of making outdoor play spaces inclusive for all, as well as promoting autistic children's outdoor play for its own sake.

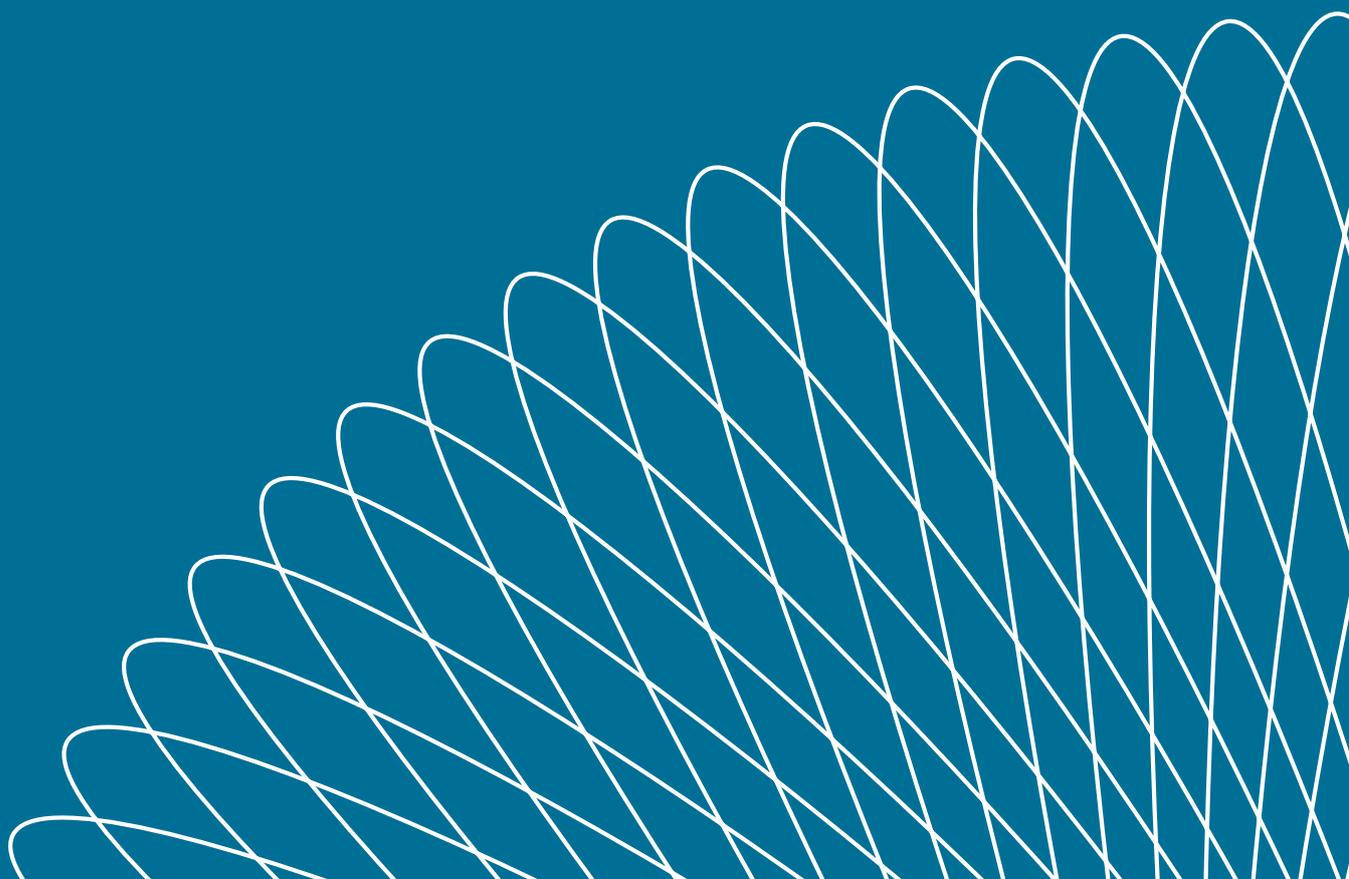
Key points from the articles included within this Bulletin are provided below, giving practical advice in relation to how best promote and encourage outdoor play.

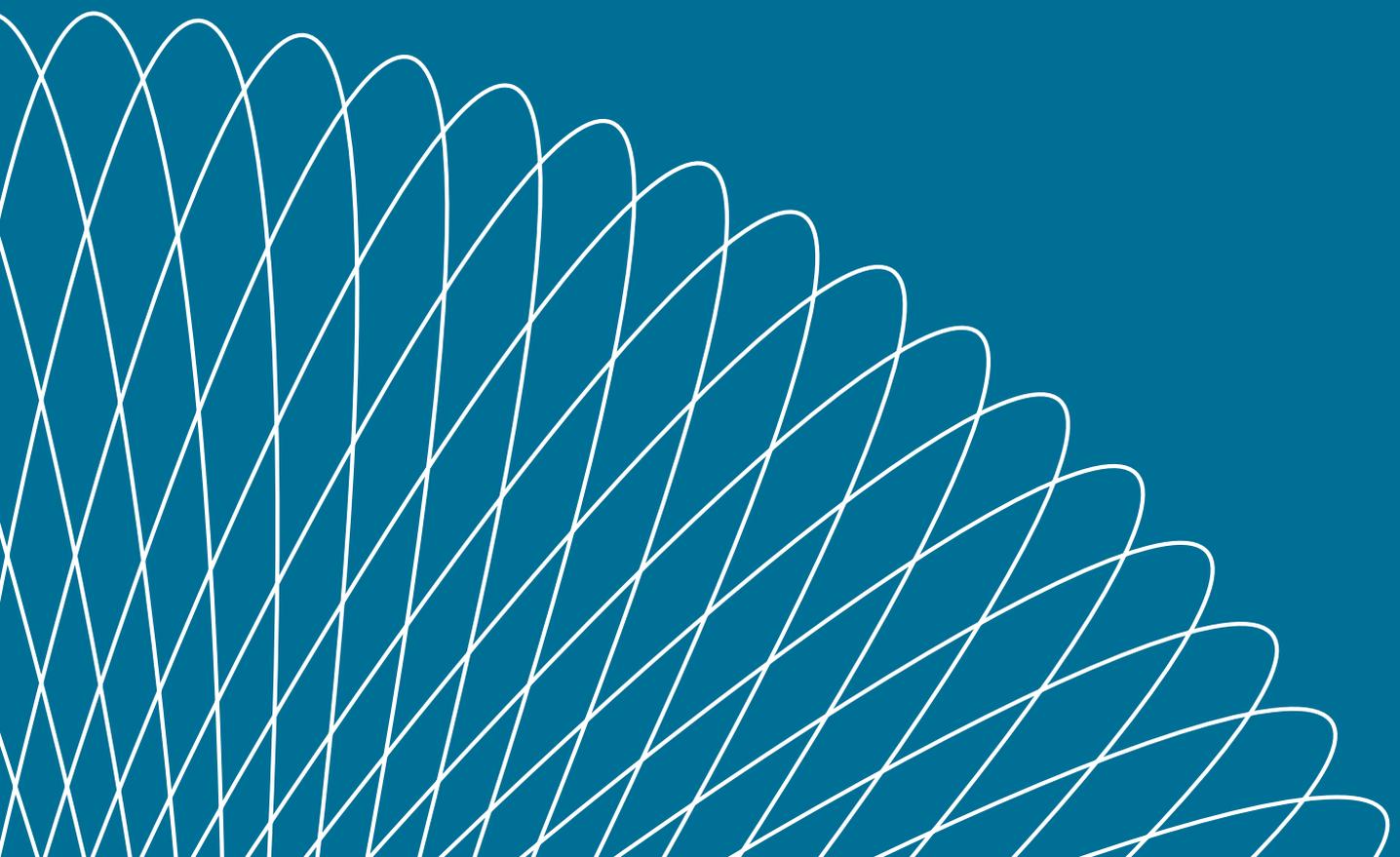
- Research shows that autistic children and young people have an affinity for nature and are found to be calmer, happier and more attentive after time spent playing outdoors. Findings show they appeared captivated by loose parts play using natural elements and were more engaged in play when it took place in wild environments.
 - Autistic children and young people face barriers to accessing play in outdoor settings. Many parents of autistic children and young people report supervision, safety concerns and lack of appropriate facilities as barriers to their child participating in physical activity at home and in the community.
 - Many autistic children therefore do not get enough physical exercise. The research shows that autistic children and young people participate in less outdoor physical activity than their peers, and there is increasing concern that many are not getting the recommended daily target of 60 minutes moderate-to-vigorous physical activity (MVPA).
 - Research indicates that the design of outdoor play spaces often does not meet the needs of autistic individuals. Those with sensory sensitivities can find the playground environment overwhelming, while expectations of 'appropriate' behaviour can deter parents from bringing their child to public play spaces.
 - Physical activity and social skills have therefore become popular targets of outdoor play interventions. While these interventions can have successful outcomes, it is important to remember that the child also has a right to 'freely chosen' play, which includes solitary and non-normative play.
 - Outdoor spaces can promote play for its own sake by providing loose parts components that offer challenging physical movements, sensory input and open-ended forms of play. Replacing prescriptive play equipment with loose parts materials can make the environment more inclusive and accessible by inviting a wider range of acceptable behaviours.
 - The inclusion of different colours, textures, sounds and smells are recommended to meet the sensory needs of autistic children, as well as features to promote active play with varied sensory elements such as running, jumping, swinging, climbing and sliding.
 - It is recommended that families and teachers of autistic children as well as health professionals should be involved in the planning and development of playgrounds, and training in child development and special education should be offered for playground developers.
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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.

Research Bulletin Feedback
Outdoor Play







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The Centre's Research and Information Service welcomes any correspondence including suggestions for future Bulletins to: research@middletownautism.com

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