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Exploring Autistic Children's Play Cycles Using the Play Cycle Observation Method (PCOM)

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Introduction

The Play Cycle is a theoretical model of play proposed by Sturrock and Else (1998), revised by King and Newstead (2020) and King (2022, 2023). It consists of six elements: the pre-cue, play cue, play return, play frame, flow, and annihilation (King & Newstead, 2019). Sturrock and Else (1998) also describe how adults can support play through a hierarchical level of involvement: play maintenance, simple intervention, medial intervention, and complex intervention. Play maintenance involves observing a child in self-contained play. Simple intervention sees the adult acting as a resource to support play flow, while medial intervention involves offering play suggestions. Complex intervention occurs when the adult becomes fully engaged in the play cycle. Adults may interfere with play by imposing their own agendas, causing play cycles to become adulterated or potentially annihilated (McInnes et al., 2011; Thomson, 2014). Adulteration occurs when an adult consciously or unconsciously dominates a child's play (Sturrock & Else, 1998).

The Play Cycle theory has since become established within playwork and professional practice (Stobart, 1998; Brown, 2002; Farrow, 2003; Playwork Principles Scrutiny Group, 2005; Else, 2009; King & Newstead, 2021a, 2021b, 2022). However, it has not yet been applied within research involving neurodivergent children. Autism is a lifelong neurodevelopmental difference affecting communication, information processing, and sensory experience, shaping how individuals engage with their environment (Mayer, 2017; Feldman et al., 2020; CDC, 2022a; NHS, 2022). The age of diagnosis typically occurs between 30 and 120 months, with a prevalence of 1 in 150 children, and its incidence continues to increase (van't Hof et al., 2021; CDC, 2022b; Harris, 2023).

Autistic children have been reported to engage in a variety of different play types (Holmes & Willoughby, 2005; Taboas et al., 2023; Pritchard-Rowe et al., 2024); however, play behaviour, duration, and perceived play preferences often differ from extensively

studied neurotypical children (Sigman & Ungerer, 1984; Knickmeyer et al., 2008; Hobson et al., 2013). Some autistic children are nonspeaking and may send play cues in less recognised manners (Elsabbagh & Johnson, 2010). Picture exchange communication system symbols, or PECS symbols, were found to increase requests for basic needs, but were not observed to communicate the desire to play within the parameters of the system (Gordon et al., 2011).

Autistic children are generally less likely to engage in pretend play (Hobson et al., 2013; Campbell et al., 2016). However, parental reports suggest that autistic girls engage in more pretend play than autistic boys (Knickmeyer et al., 2008). This may be related to social masking, where girls adopt the behaviours of others to assimilate with peers (Gould, 2017; Corscadden & Casserly, 2021; Lockwood Estrin et al., 2021). In the context of pretend play, which involves shared social scripts and imitation, autistic girls may be replicating other observed play behaviours (To & Kung, 2025). This suggests that pretend play in autistic children may be expressed differently or less readily recognised, rather than absent.

Functional play is more commonly observed among autistic children (Holmes & Willoughby, 2005). Additionally, Lisk et al. (2023) highlight imaginative play with pets, where autistic children creatively engage with pet toys.

Pritchard-Rowe et al. (2024) found that autistic adults retrospectively described a preference for solitary play during childhood; however, this may not indicate a lack of desire for social connection. Within parallel-functional play, it is possible that play cues directed towards others were attempted but missed or ignored, allowing the child to remain alongside others while continuing to play independently. Kasari and Chang (2014) observed that autistic children sometimes pushed others away during solitary play, which may reflect a clear rejection of specific play cues rather than avoidance of social interaction. In contrast, Khatab et al. (2024) found that autistic children successfully engaged in collaborative play when adults are present to scaffold play, indicating that difficulties may lie in cue recognition

or reciprocity rather than motivation to play socially (Schwebel, 2006). Calder et al. (2013) similarly found increased social play behaviours in autistic children, though these were driven by parental expectations. This aligns with Pritchard-Rowe et al. (2024), who reported that while social play could be enjoyable, it was frequently described as emotionally and cognitively exhausting. These findings suggest that what appears to be solitary play may instead reflect differences in processing demands, cue recognition, or social fatigue, rather than an absence of social motivation

One area that has received less attention in autism research is rough-and-tumble play. El-Ghoroury and Romanczyk (1999) found autistic children would initiate and respond to rough-and-tumble play, as this appears to encourage positive and prosocial play behaviour. Rough-and-tumble play may provide autistic children with the sensory stimuli that they seek (Hazen et al, 2014). However, research consistently shows that rough-and-tumble play is engaged predominantly by boys, possibly due to external factors such as gender or parental approval (Langlois & Downs, 1980; DiPietro, 1981; El-Ghoroury & Romanczyk, 1999). This may limit access to this form of prosocial play for some girls (Sturrock & Else, 1998). Sensory-seeking behaviour within autistic children has been frequently observed across developmental and autism literature (Piaget, 1972; Sigman & Ungerer, 1984; Dahlgren & Gillberg, 1989; Trevarthen, 1988; Vondra & Belsky, 1989; Williams, 2003; Kirby et al., 2017). Such sensory experiences can be heightened for these children (Dickie et al., 2009), seeking them has been described as a metaphorical 'itch' (Hazen et al., 2014). Sensory play is beneficial for well-being and learning (Watson, 2022), enhancing social skills and relationships (Lu et al., 2010; Davey, 2020). Adults will tend to avoid sensory play due to mess, consequently pushing play agendas onto children by redirecting children to a less messy interaction (Glenn et al., 2013; Midgley, 2014; Gascoyne, 2016; 2018; Kirby et al., 2017).

Leaf et al. (2012) found that adult manipulation of less preferred play materials could spark interest in autistic children, highlighting the role of responsive adult engagement. Similarly, Field et al. (2013) reported that autistic children were more likely to send play cues and returns to imitative adults than to parents, suggesting that attuned imitation may support reciprocity in play. Playful approaches, such as Intensive Interaction, may further support nonspeaking children to communicate play cues (Nind, 1999; Hutchinson & Bodicoat, 2015; Smith, 2017; Alokla, 2018). However, Williams (2003) found that adults displayed fewer smiles, eye contact, and turn-taking games, such as peek-a-boo, when interacting with autistic infants, which may reduce opportunities for play cue exchange. Adults may also miss play cues when their understanding of play differs from the child's perspective (Brown, 2014; McInnes, 2019). This highlights the importance of adult reflection on play practice, particularly approaches that recognise the diversity of play and autistic communication styles (Hess, 2006; Howard & McInnes, 2013; Pritchard-Rowe et al., 2024).

Previous research on play observation has utilised tools that focus on specific aspects of play, including the Preschool Play Scale (Bledsoe & Shepherd, 1982), the PLAY Assessment Measure (Farmer-Dougan & Kaszuba, 1999), the Play Observation Scale (Rubin, 2001, 2003), and the Playground Observation of Peer Engagement (Kasari et al., 2009). While these measures capture their intended outcomes, they may overlook crucial elements of the Play Cycle (Stagnitti, 2004; Sturrock & Else, 1998; King & Sturrock, 2019). In response, the Play Cycle Observation Method (PCOM) was developed to capture four observable aspects of the Play Cycle: the play cue, play return, play frame, and annihilation (King, 2020), enabling play to be observed and mapped as a dynamic process (King & Sturrock, 2019; King, 2020; King et al., 2021). The PCOM has been piloted using both video-recorded play and real-time observation (King, 2020; King et al., 2021) and has demonstrated validity and reliability in recording play processes. However, while the PCOM

has been applied with typically developing children, there remains no empirical evidence documenting play processes or play cycles of neurodivergent children.

Understanding the complete play processes of autistic children could challenge long-standing misconceptions and stigma that frame autistic play as limited. By recognising how autistic children communicate, initiate, and sustain play, professionals can become more attuned to subtle or alternative play cues. When practitioners adapt environments and offer preferred materials, each child's authentic mode of play is supported and positioned as valid, meaningful, and purposeful. Such practice actively challenges deficit-based framings by foregrounding autistic children's capabilities and diversity, helping to reduce stigma across educational, clinical, and community contexts. Ultimately, recognising the richness and legitimacy of autistic play promotes more respectful, informed, and inclusive attitudes towards autistic children (Sturrock & Else, 1998; Smith, 2017; Papoudi & Kossyvaki, 2018; Hens, 2019; Rutherford et al., 2020; Lei & Kantor, 2021; Turnock et al., 2022). Therefore, this study adopted an exploratory, naturalistic observational design to address the research question: "How is the process of play observed within autistic children?"

Methods

Design and Materials

The Play Cycle Observation Method (PCOM) was used to map the play cycles of each child. The PCOM procedure involves the focus on one child (termed the Target Child) and records the observable elements of the Play Cycle (play cue, play return, play frame, and annihilation). This is explained below:

1. The PCOM sheet (see Figure 1) begins by observing the target child sending a play cue or receiving a play return. The sender and recipient of the play cue are coded on the PCOM sheet along with the time and a brief statement of the cue. "Non-human" refers to playful stimuli.

Figure 1*A Blank PCOM Sheet*

PCOM Record Sheet Number:	Start time of Play Cycle:	Total number of people in the Play Cycle: Children: Adults:							
<div style="border: 2px solid black; border-radius: 50%; padding: 20px; width: 80%; margin: 0 auto;"> <div style="text-align: right; margin-bottom: 10px;">Play Frame</div> <div style="display: flex; justify-content: space-between;"> <div style="text-align: left;"> <p>→ Play Cue</p> <div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;"> What is the play cue? Who issued the cue? 1a 1b 1c </div> <div style="border: 1px solid black; padding: 5px;"> What is the play return? Who provided the return? 2a 2b 2c 2d </div> </div> <div style="text-align: right;"> <p>Play Cycle</p> <p>← Play Return</p> </div> </div> </div>	<div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;"> ⊙ → How are Adults supporting the Play Cycle? </div> <div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;"> △ → Are Adults controlling the Play Cycle? </div> <table border="1" style="width: 100%; border-collapse: collapse; margin-bottom: 5px;"> <thead> <tr> <th style="text-align: left;">Issue Play Cue</th> <th style="text-align: left;">Number of play cues observed in established Play Cycle</th> </tr> </thead> <tbody> <tr> <td>1a Target Child</td> <td></td> </tr> <tr> <td>1b Another Child(ren)</td> <td></td> </tr> <tr> <td>1c Adult</td> <td></td> </tr> </tbody> </table>	Issue Play Cue	Number of play cues observed in established Play Cycle	1a Target Child		1b Another Child(ren)		1c Adult	
Issue Play Cue	Number of play cues observed in established Play Cycle								
1a Target Child									
1b Another Child(ren)									
1c Adult									
How would you describe the Play Frame (space) that contains the Play Cycle?	End time of Play Cycle and how it finished?								
Key: Play Cue – 1a Target Child, 1b Non-Target Child or 1c Adult Play Return – 2a Target Child, 2b another child, 2c Adult or 2d non-human © King 2018									

2. When a play return is given, the play frame is established and a description is inputted. This could be a game, space, or play type. Each PCOM lasts a maximum of ten minutes. If the target child issued a play cue but had no play return, this is noted, and a new PCOM sheet begins.
3. Play cues continue to be sent within established play cycles, these are tallied by the sender.
4. Anecdotes of adult support and intervention are noted.
5. Finally, annihilation time and reason are recorded (King, 2020; King et al., 2021).

Researcher Positionality

The study was conducted by a single researcher experienced with autistic children, enabling sensitivity to subtle play cues. While the supervisor helped develop the PCOM, all

observations and analysis were conducted independently. Reflexive awareness and the structured PCOM minimized potential bias.

Participants and Procedure

Ethical clearance was obtained from Swansea University prior to conducting this study. The inclusion criteria for the study included that children were required to have a diagnosis of autism. In total, 9 children took part – 6 boys and 3 girls. Ages ranged from 3 to 13 years ($M_{\text{overall}} = 6.55$, $SD_{\text{overall}} = 3.09$; $M_{\text{boys}} = 7.33$, $SD_{\text{boys}} = 3.39$); $M_{\text{girls}} = 5$, $SD_{\text{girls}} = 1.41$). Children were recruited using convenience sampling from a play organisation offering one-hour time slots to access a playroom to a limited number of families. Prior to any observation being undertaken, consent was obtained from parents and carers. Parents and carers were approached to participate after the children were settled, if the child remained unsettled, they

Table 1

Total Observation Time, Minutes of Play Observed, and Number of Adults and Children

Present

	<i>Total Time Observed in Minutes</i>	<i>Total Time of Play in Minutes</i>	<i>Adults Present</i>	<i>Children Present (Including Target Child)</i>
<i>Child A (Observation one)</i>	39	25	5	2
<i>Child A (Observation two)</i>	35	35	6	3
<i>Child B</i>	40	35	4	2
<i>Child C</i>	39	13	5	3
<i>Child D</i>	33	29	3	1
<i>Child E</i>	26	25	4	2
<i>Child F</i>	25	17	4	2
<i>Child G</i>	55	47	4	1
<i>Child H</i>	31	21	5	3
<i>Child I</i>	22	0	4	3

were not approached to participate (Nasef et al., 2014). The number of PCOM observations is outlined in Table 1, no child appeared uncomfortable during any of the observations.

The PCOM sheets were completed in real time (King et al., 2021), enabling both quantitative and qualitative data to be collected. The quantitative data included, for example, the number of play cues issued and the length of a play cycle. The qualitative data included the type of play within the play frame and how adults supported or controlled the play cycle. Thus, each aspect of the play cycle recorded within the PCOM also captured relevant anecdotal information (Bradley, 1992; 2021). As observations were conducted by a single trained observer, formal inter-rater reliability measures were not applicable. However, consistency and credibility were supported through the use of a structured, theory-driven observational framework with clearly defined constructs, alongside real-time recording to reduce retrospective bias. Once a PCOM observation had been completed, all data collected were collated into the PCOM Record Sheet Table:

Figure 2

PCOM Record Table

Record Sheet	Play Cue Issued			Play Return				Time	Play Cues in Established Play Cycles		
	Column 1	Column 2	Column 3	Column 4				Column 5	Column 6	Column 7	Column 8
	TC	N-TC	A	TC	N-TC	A	N-H		TC	N-TC	A
PCOM 1											
PCOM 2											
PCOM 3											
PCOM 4											
PCOM 5											
PCOM 6											
PCOM 7											
PCOM 8											
PCOM 9											
PCOM 10											
PCOM 11											
PCOM 12											
PCOM 13											
PCOM 14											
PCOM 15											
PCOM 16											
PCOM 17											
PCOM 18											
PCOM 19											
PCOM 20											
Add up each column	TC Play Cues	N-TC Play Cues	A Play Cues	Play Cycles Formed (Add all the Returns together)				Add all times together	TC Play Cues	N-TC Play Cues	A Play Cues
Total											
Average											

In total, 113 Play Cycle observation method (PCOM) sheets were completed from ten observations of nine children. The total continual observational time ranged from 22 minutes to 55 minutes. Once all the PCOM sheets were inputted into the PCOM Record Sheet Table,

(with one PCOM Record Sheet Table being used for each observation) the frequency and percentage of play cues and returns that were issued by the target child, a non-target child, or an adult, as well as play cues issued in established play cycles, were calculated.

Results

Data were analysed to directly address the research question by identifying patterns in how autistic children initiated, sustained, and concluded play cycles, and how adult presence and intervention influenced these processes. The frequency and source of play cues and returns enabled analysis of children's play initiation and reciprocity, while the duration and completion of play cycles provided insight into the sustainability of play engagement. Qualitative descriptions of play frames and adult behaviours allowed examination of how adult support or control shaped the development, interruption, or annihilation of play cycles. By combining these measures, the PCOM data enabled both a structural and contextual analysis of play, demonstrating not only whether play cycles occurred, but how they were formed and influenced within the play environment, thereby directly addressing the aims and research question of the study.

The results from the 113 PCOM observations with the nine children are provided in Tables 2-10 for Child A to Child I. The tables provide the frequency and the percentage of the play cues and play returns, as well as the average length of play cycle formed. In addition, more qualitative information is provided on the types of play in the play frame and the adult role in any play cycles formed.

Table 2*The Frequency and Percentages of Child A's Play Processes*

	Observation One		Observation Two	
	Frequency	Percentage	Frequency	Percentage
<i>Play Cues Issued by:</i>				
1. Target Child	21	91.3%	19	70.37%
2. Non-Target Child	0	0%	0	0%
3. Adult	2	8.69%	8	29.62%
<i>Play Cycles Formed</i>	20	86.95%	25	92.59%
<i>Average Length of Play Cycles</i>	1 minute and 15 seconds		1 minute and 24 seconds	
<i>Play Returns Given by:</i>				
1. Target Child	1	5%	6	24%
2. Non-Target Child	0	0%	0	0%
3. Adult	5	25%	6	24%
4. Non-Human	14	70%	13	52%
<i>Play Cues in Established Play Cycles Sent by:</i>				
1. Target Child	48	85.71%	54	62.06%
2. Non-Target Child	0	0%	0	0%
3. Adult	8	14.28%	33	37.93%

Observations for Target Child A gathered the most PCOM sheets with numerous shorter play cycles. The play behaviour or plaything continuously changed, but was often the child's comfort item, which was a plastic bottle. Child A displayed transitional and onlooker behaviour whilst they tapped their bottle on different surfaces (Holmes & Willoughby, 2005; Gascoyne, 2016; 2018). This action was accompanied by stimming and confirmed by their parent that they were happy (Masiran, 2018; Kapp et al., 2019). The target child sent play cues to their parent by making eye contact and smiling, then running where they were not permitted. Child A appeared to want to be chased and would annihilate other play cycles if they noticed adults had become distracted. Play cycles were adulterated for the safety of the child as necessary (Howard & McInnes, 2013).

Table 3*The Frequency and Percentages of Child B's Play Processes*

	Frequency	Percentage
<i>Play Cues Issued by:</i>		
1. Target Child	6	100%
2. Non-Target Child	0	0%
3. Adult	0	0%
<i>Play Cycles Formed</i>	5	83.33%
<i>Average Length of Play Cycles</i>	7 minutes	
<i>Play Returns Given by:</i>		
1. Target Child	0	0%
2. Non-Target Child	1	20%
3. Adult	1	20%
4. Non-Human	3	60%
<i>Play Cues in Established Play Cycles Sent by:</i>		
1. Target Child	20	60.6%
2. Non-Target Child	4	12.12%
3. Adult	9	27.27%

The adult roles for Target Child B consisted of play admirers, conflict mediators, and the role of medial involvement, but were all minimal (Howard & McInnes, 2013). Adults followed non-directive, child-centred approaches for the containment of play (Axline, 1947). Child B sent a play cue to an adult; however, the adult told them that they did not want to play. The play styles of Child B were functional and constructive, solitary, and parallel to other children (Piaget, 1970; Holmes & Willoughby, 2005). The play cues sent by the non-target child in established play cycles encouraged the target child to continue their play. They helped with a puzzle whilst they completed a similar puzzle, acknowledging each other in parallel play. Annihilation consisted of lost interest, although one play cycle lasted for ten minutes, uninterrupted, of non-directed play at the arts and crafts tray, with annihilation when the craft was complete.

Table 4*The Frequency and Percentages of Child C's Play Processes*

	Frequency	Percentage
<i>Play Cues Issued by:</i>		
Target Child	6	85.71%
Non-Target Child	0	0%
Adult	1	14.28%
<i>Play Cycles Formed</i>		
<i>Average Length of Play Cycles</i>	4	57.14%
	3 minutes and 15 seconds	
<i>Play Returns Given by:</i>		
Target Child	0	0%
Non-Target Child	0	0%
Adult	1	25%
Non-Human	3	75%
<i>Play Cues in Established Play Cycles Sent by:</i>		
Target Child	9	100%
Non-Target Child	0	0%
Adult	0	0%

Target Child C appeared unsuccessful in receiving play returns due to a relatively low percentage of established play cycles. Play cues to other children were ignored or rejected; however, adults did return some play cues. This session was busy with multiple activities available. They engaged in short, sensory, and exploratory play styles with the baking mixture; these were short due to adulteration, likely due to mess. Child C engaged in pretend play at the kitchen set, sending play cues through making food for others. One adult asked for other food items and initiated a pretend make-believe Play Cycle (Hughes, 1998; Holmes & Willoughby, 2005).

Table 5*The Frequency and Percentages of Child D's Play Processes*

	Frequency	Percentage
<i>Play Cues Issued by:</i>		
Target Child	7	46.66%
Non-Target Child	0	0%
Adult	8	53.33%
<i>Play Cycles Formed</i>		
<i>Average Length of Play Cycles</i>	10	66.66%
	2 minutes and 54 seconds	
<i>Play Returns Given by:</i>		
Target Child	3	30%
Non-Target Child	0	0%
Adult	4	40%
Non-Human	3	30%
<i>Play Cues in Established Play Cycles Sent by:</i>		
Target Child	16	42.10%
Non-Target Child	0	0%
Adult	22	57.87%

Target Child D ignored and declined many play cues issued by adults towards the beginning of the play session. Child D repetitively and functionally played with a toy truck (Hazen et al., 2014). They cued adults by showing the functionality of the toy they explored, with play admiration in response. Adults annihilated the toy truck play cycles to engage Child D in another activity, therefore adulterating play. However, this transitioned into simple involvement, and later play maintenance, with Child D engaging in exploratory and independent play cycles. During a board game, the pieces were used in a pretend and imaginative play cycle, with the adult acting as a play partner to the child (Weinstein, 2008; Howard & McInnes, 2013). The adult began this with medial involvement and allowed Child D to take the lead.

Table 6*The Frequency and Percentages of Child E's Play Processes*

	Frequency	Percentage
<i>Play Cues Issued by:</i>		
Target Child	7	77.77%
Non-Target Child	0	0%
Adult	2	22.22%
<i>Play Cycles Formed</i>		
<i>Average Length of Play Cycles</i>	8	88.88%
	3 minutes and 7 seconds	
<i>Play Returns Given by:</i>		
Target Child	2	25%
Non-Target Child	0	0%
Adult	1	12.5%
Non-Human	5	62.5%
<i>Play Cues in Established Play Cycles Sent by:</i>		
Target Child	15	68.18%
Non-Target Child	0	0%
Adult	7	31.81%

Target Child E began with relatively short play cycles accompanied by transitional and onlooker behaviour of hovering around another child who was playing. Child E was nonspeaking (Smith, 2017; Alokla, 2018), therefore, adults were more vigilant in picking up play cues and making suggestions through simple involvement. Child E required adult intervention to establish a play cycle, although sensorial play was adulterated as the child painted the tuff tray instead of the paper. Adults took on play maintenance roles when Child E played independently; however, they spent more time in the role of simple involvement as they made new playthings available congruent with play cycles of Child E (Sturrock & Else, 1998; King & Newstead, 2020, 2021b). The adult suggested water play to Child E, originally taking on the role of simple involvement. Child E cued the adult back when the adult attempted to withdraw from play, instead becoming a play partner in medial intervention. They engaged in sensorial water play through turn-taking of pouring water on loose parts and affordances (Nicholson, 1971, 1973; Heft, 1988; Gascoyne, 2016).

Table 7*The Frequency and Percentages of Child F's Play Processes*

	Frequency	Percentage
<i>Play Cues Issued by:</i>		
Target Child	1	7.14%
Non-Target Child	1	7.14%
Adult	12	85.71%
<i>Play Cycles Formed</i>	5	35.71%
<i>Average Length of Play Cycles</i>	3 minutes and 24 seconds	
<i>Play Returns Given by:</i>		
Target Child	4	80%
Non-Target Child	0	0%
Adult	0	0%
Non-Human	1	20%
<i>Play Cues in Established Play Cycles Sent by:</i>		
Target Child	3	14.29%
Non-Target Child	7	33.33%
Adult	11	52.38%

Adults took on dominant roles as they issued many play cues. Target Child F demonstrated transitional behaviour between play cycles and hovered around their sibling. When Child F issued play cues, they were mostly directed to non-humans (King, 2022). Child F engaged in a sensorial play cycle, with this being the only play cue they issued that began a play cycle; however, this was adulterated and annihilated. Child F attempted to manipulate rice by moving the tuff tray, but the adult redirected to functional play with scoops. Medial intervention was apparent when the adult cued Child F to complete a puzzle, with the adult acting as a play partner. Child F engaged, but when the puzzle ended, it took time to establish a new play cycle. The adult largely controlled play through frequent suggestions of what to do next, or how to play. Towards the end of the observation, Child F annihilated the play cycle as well as any future play cycles by expressing that they did not want to play. Despite this, cues were still issued to them.

Table 8*The Frequency and Percentages of Child G's Play Processes*

	Frequency	Percentage
<i>Play Cues Issued by:</i>		
Target Child	3	75%
Non-Target Child	0	0%
Adult	1	25%
<i>Play Cycles Formed</i>		
<i>Average Length of Play Cycles</i>	4	100%
<i>Play Returns Given by:</i>		
Target Child	1	25%
Non-Target Child	0	0%
Adult	0	0%
Non-Human	3	75%
<i>Play Cues in Established Play Cycles Sent by:</i>		
Target Child	8	20%
Non-Target Child	0	0%
Adult	32	80%

Target Child G's observation surrounded the sand tray as they engaged in repetitive and sensorial play cycles of picking sand up and watching it fall (Hazen et al., 2014). Adults issued many play cues, with most being ignored or rejected, likely due to full immersion in play. Child G appeared to enjoy themselves as evidenced by their stimming (Masiran, 2018; Kapp et al., 2019). Adults would cue Child G in a child-centred approach, with playthings congruent with sand (Weinstein, 2008). Child G would watch the adult, and after a few minutes they would offer play returns by pouring sand near the adult. When the adults cued Child G to play with the kitchen set, Child G brought the toy pans to use with the sand, therefore using affordances to facilitate their play (Nicholson, 1971; 1973; Heft, 1988). Due to the child being nonspeaking, this could also be interpreted as a form of communication and rejection of the play cue (Alokla, 2018). Annihilation occurred due to Child G getting sand in their eye, adults took on the role of safety officer after this to prevent reoccurrence.

Table 9*The Frequency and Percentages of Child H's Play Processes*

	Frequency	Percentage
<i>Play Cues Issued by:</i>		
Target Child	3	50%
Non-Target Child	0	0%
Adult	3	50%
<i>Play Cycles Formed</i>	4	66.66%
<i>Average Length of Play Cycles</i>	5 minutes and 15 seconds	
<i>Play Returns Given by:</i>		
Target Child	1	25%
Non-Target Child	0	0%
Adult	0	0%
Non-Human	3	75%
<i>Play Cues in Established Play Cycles Sent by:</i>		
Target Child	9	75%
Non-Target Child	0	0%
Adult	3	25%

The largest adult roles in this observation were those of play maintenance and safety officer. When Target Child H engaged in an imaginative and pretend play cycle of 'surfing' on the swing, adults redirected this to sitting down and helping to push the child. The adult approached Child H to play a board game in medial intervention, and Child H used the pieces to initiate imaginative and pretend play cycles with the adult as the play partner. Adults sent two play cues to Child H to make a block tower with them which were rejected. Child H later sent adults a play cue to build a block tower. This could be due to Child H displaying transitional and possibly anxious behaviour during this observation, as some play cycles were annihilated through the presence of other children, this resulted in play breaks. Alternatively, the observed delayed response to the play cue to build a block tower may also relate to processing times (Gastgeb et al., 2006; Booth & Happé, 2018).

Table 10*The Frequency and Percentages of Child I's Play Processes*

	Frequency	Percentage
<i>Play Cues Issued by:</i>		
Target Child	1	33.33%
Non-Target Child	1	33.33%
Adult	1	33.33%
<i>Play Cycles Formed</i>	0	0%
<i>Average Length of Play Cycles</i>	0 seconds	
<i>Play Returns Given by:</i>		
Target Child	0	0%
Non-Target Child	0	0%
Adult	0	0%
Non-Human	0	0%
<i>Play Cues in Established Play Cycles Sent by:</i>		
Target Child	0	0%
Non-Target Child	0	0%
Adult	0	0%

Target Child I spent the play session searching for a plaything, but did not form a play cycle. A non-target child cued Child I by asking for help to set up and play with a keyboard. Some onlooker behaviour was observed after the keyboard was set up (Parten, 1932; Holmes & Willoughby, 2005), however, Child I was significantly older and may not have been interested. Adults took on the role of simple involvement by making suggestions. When Child I declined, the adult led them to the storeroom and allowed them to look. The family arrived late to their hour session, suggesting Child I may have found a plaything if they had more time to process playthings available.

Summary of the Results

Overall, this study provided valuable insights into the varied play processes of autistic children and how this can be observed (Sturrock & Else, 1998; King & Sturrock, 2019; King, 2020; King et al., 2021). This research confirms the spectrum of autism, with the individual differences of each child forefront (Ronald et al., 2005; Mayer, 2017; Bury et al., 2019).

Many play types and behaviours were observed (Parten, 1932; Piaget, 1970; Hughes, 1998), alongside how the children cued others into their play cycles, as well as the presence of the perceptual play cue (Sturrock & Else, 1998; King & Newstead, 2020; King, 2022). The adult played vital roles during the observations, which highlight their importance and influence in the containment of play cycles when they adopt non-directive and child-centred approaches (Axline, 1947; Sturrock & Else, 1998; Weinstein, 2008; King & Newstead, 2020, 2021b, 2022).

Discussion

This research has provided empirical evidence of the use of the Play Cycle Observation Method (PCOM), cemented its reliability as an observation tool for children's play, and has been vital in contributing to answering the research question of this study: "How is the process of play observed within autistic children?" (King & Sturrock, 2019; King, 2020; King et al., 2021).

This study aimed to observe and record the play process of autistic children using the Play Cycle Observation Method (PCOM). By applying the PCOM to autistic children for the first time, this study provides empirical insight into how play cycles are initiated, sustained, and terminated within neurodivergent play and has supported the reliability of the PCOM as an observational tool. The findings demonstrate that the PCOM was able to capture both the structure and context of play, offering insight into not only whether play cycles occurred, but how they were formed, maintained, and shaped within a naturalistic play environment. Assumptions regarding play types have been supported and challenged, demonstrating the value of observing the full play process instead of isolated behaviours.

The PCOM may be particularly suited to observing autistic play, as it accommodates non-verbal cues, delayed responses, perceptual engagement, and non-human play returns, which are often under-represented in traditional play assessment tools. Empirical and

anecdotal data could be gathered, whilst mapping how play began, ended, and how cues were sent within it, along with anecdotal information surrounding adult involvement, play frames, and annihilation causes. Therefore, mapping the complete process of play rather than segments of it (King & Sturrock, 2019; King, 2020; King et al., 2021). This is unlike previous observation tools that focus on specific aspects of play (Bledsoe & Shepherd, 1982; Rubin & Coplan, 1998; Farmer-Dougan & Kaszuba, 1999; Rubin, 2001, 2003; Stagnitti, 2004; Nation & Penny, 2008; Kasari et al., 2009; Coplan & Rubin, 2021).

However, the PCOM is a recently developed measurement tool (King & Sturrock, 2019; King, 2020; King et al., 2021). Regarding the context of this study, it cannot be confirmed that use of the PCOM in real time picked up every relevant behaviour. Video recording may lessen the likelihood of missed play cues, nevertheless, the anonymity and confidentiality of the children involved are paramount. Conversely, observations in real time are ultimately more ethical, as no identifiable information is gathered and stored. It may be suggested that a few researchers may use the PCOM during real-time observations to reduce the likelihood of missed cues in the future.

This research observed target children sending and responding to play cues, verbally and non-verbally, despite the literature suggesting preferences for solitary play (Rubin et al., 1976; Rubin et al., 1978; Sturrock & Else, 1998; Holmes & Willoughby, 2005; Kasari & Chang, 2014; Gilmore et al., 2019; King & Newstead, 2020). Play cues were sent within established play cycles, even during independent play, showing that the children would willingly annihilate solitary play cycles to play with others (Knott et al., 1995; El-Ghoroury & Romanczyk, 1999; Frankel et al., 2011; Calder et al., 2013; Lish et al., 2023). The majority of ignored or declined play cues originated from adult initiation, observed within established play cycles and in the absence of a play cycle. Most play returns originated from non-humans such as toys or loose parts; likely due to the playful setting and the perceptual play cue

(Piaget, 1952, 1970; Nicholson, 1971, 1973; King, 2022). These findings support suggestions that apparent solitary play does not indicate reduced social motivation, but rather differences in cue timing, reciprocity, or preferred modes of engagement (Pritchard-Rowe et al., 2024).

Some play returns may have been delayed. For example, Child H was cued by an adult to create a block tower, which appeared to be declined twice but was resent after a period of transitional behaviour (Sturrock & Else, 1998; Holmes & Willoughby, 2005; King & Newstead, 2020). Likewise, within already established play cycles, Child G also waited before they poured sand onto the adult. The research states that autistic individuals may require more time to process visual and sensory information (Gastgeb et al., 2006). It could be suggested that Child H intended to provide a play return but needed more time to process the initial play cue. This can cause complications during observation. Whilst the play cue had a contextual timeframe to be picked up, this could be extended within the research of autistic children to account for individual processing times (Gastgeb et al., 2006; Booth & Happé, 2018).

Subtle play cues would likely be missed if the environment lacked playful stimuli and without adult vigilance to play cues (Black et al., 1975; Dygon, Conger & Keane, 1987; Sturrock & Else, 1998; Smith, 2017; King & Newstead, 2020). The children observed were with their parents and well-known staff members, with the researcher being knowledgeable in play practice and experienced working with autistic children. It could be assumed that the likelihood of missing a play cue is small; however, this may differ in other contexts with different interpretations of play (Howard, 2002; McInnes, 2019).

Within almost all observations, annihilation causes consisted of the hour-long time slot ending, loss of interest, and receiving other play cues. Some play cycles naturally terminated, such as Child A getting "caught" in chase and Child B completing their art. Child F had annihilated their play cycle alongside future ones due to wanting to leave. Also, Child I

did not establish a play cycle to annihilate. The duration of play cycles observed varied (Sturrock & Else, 1998; King & Newstead, 2020), play durations are noted within the literature (Barnett & Storm, 1981; Slade, 1987; Faulkner et al., 2015), but generally lack a description of a cue that indicates the beginning and end. Tamis-LeMonda and Bornstein (1993) attempted to map the duration of play through the term “attention episodes”. The use of the PCOM can map more accurate durations in the future (King, 2020; King et al., 2021).

It has been highlighted that adults should not insert themselves into established play cycles, as children can view play as less likely to occur in the presence of adults (Sturrock & Else, 1998; Avenell, 2017; McInnes, 2019). However, this study observed many positive interactions after adults inserted themselves into play cycles, with consistent play cues to the adults from children (Howard & McInnes, 2013). For example, through medial intervention, Child E was able to find an enjoyable activity. When a play cycle became established, adults attempted to withdraw to allow space for the child to play; however, Child E cued them back into play. This apparent preference for adult participation was associated with longer play cycles. These findings suggest that adult involvement can function as a supportive scaffold rather than an interruption, particularly when adults respond to play cues rather than directing activity. This aligns with evidence that autistic children may benefit from adult support during play initiation, when cue recognition is facilitated rather than replaced (Kasari & Chang, 2014; Khatab et al., 2024). The PCOM enabled the identification of these patterns across the full play process, demonstrating its sensitivity to relational dynamics within naturalistic play contexts.

This research aligns with literature highlighting the social potential of sensory and messy play (Beckerleg, 2008; Gascoyne, 2016, 2018; Kirby et al., 2017; Davey, 2020; Watson, 2022). Child E demonstrated play cues through eye contact and stimming behaviours, which were interpreted as indicators of positive engagement (Masiran, 2018;

Kapp et al., 2019). Similarly, when adults offered congruent play cues, Child G responded with eye contact, indicating reciprocal engagement. Sensory and messy play often prompts repetitive behaviours, commonly observed in autistic children, as seen with Child G (Honey et al., 2007; Hazen et al., 2014). Child-led, non-directive approaches further supported connection by allowing children to guide play according to their interests (Axline, 1947; Weinstein, 2008). However, adults often avoided messy play due to concerns about mess, which sometimes led to interrupted or adulterated play cycles, as observed with Child F and Child C (Canning, 2007; Glenn et al., 2013; Midgely, 2014; Gascoyne, 2016, 2018). Despite this, when adults adopted a responsive rather than directive role, they were able to support children in sustaining and extending play cycles. These observations further demonstrate the capacity of the PCOM to capture environmental influences and adult mediation within play processes.

Furthermore, positive social engagement during rough-and-tumble play has previously been documented (El-Ghoroury & Romanczyk, 1999), which was reflected in the observations of Child A, who smiled to initiate interaction and laughed throughout the activity. However, play cues were only sent to adults, not children. Similar observations were drawn when comparing results by Williams (2003), for example, Child D explored a toy truck by close inspection; Child E watched the water streams closely; and Child G watched the sand fall close to their eye. Functional play cycles were observed to occur spontaneously, such as Child D playing with the toy truck (Sigman & Ungerer, 1984; Hughes, 1998). However, several functional play cycles were initiated by adults, for example adults cued Child F to build a block tower and Child E to play with the kitchen set (Sturrock & Else, 1998; King & Newstead, 2020). The PCOM allowed distinctions between child-led and adulterated play cycles to be systematically recorded.

Contrary to some assumptions within the literature, Child D and Child H both spontaneously initiated pretend play cycles during rule-based games. This shows autistic children will engage in pretend and fantasy play (Hughes, 1998; Holmes & Willoughby, 2005; Hobson et al., 2013; Campbell et al., 2016). It is also possible that some play behaviours, particularly pretend play observed during rule-based games, may reflect socially learned scripts or masking processes, especially among girls (Gould, 2017; Lockwood Estrin et al., 2021). Most play frames were grounded within the observed physical boundaries, with little exploration of more complex, social narratives (Parten, 1932; Hughes, 1998; Jennings, 2005). This may reflect the affordances of the richly resourced play space rather than limitations in imaginative capacity (Parten & Newhall, 1943; Piaget, 1952, 1970, 1976a, 1976b; Kendrick, 2005; King, 2022). It is, therefore, possible that alternative environments may create different forms of symbolic engagement. The ability of the PCOM to document both functional and pretend play cycles within naturalistic contexts further supports its applicability across diverse play.

Overall, this study provided valuable insights into the varied play processes of children diagnosed with autism spectrum disorder (ASD) and how this can be observed. These findings align with the wider autism literature, which highlights the importance of individualised approaches to support and recognises the variability within autistic profiles and experiences. The variability observed across play cycles reinforces that autistic play cannot be understood through a single developmental framework or standardised expectation. Instead, the findings support the perspective that play support should be responsive to sensory preferences, processing times, and interaction styles. The PCOM offers a structured yet flexible observational tool for perceiving individual differences, providing a potential foundation for developing tailored play-based interventions and support strategies. Future research could build upon this by using data that has used the PCOM to design and evaluate

specific approaches to adult facilitation, environmental adaptations, or play scaffolding methods that align with each unique play profile. In this way, the method described in this study not only contributes to observational research but may also inform personalised practice frameworks within therapeutic, educational, and playwork settings.

In conclusion, the present study has gathered important findings that fit within the limited body of knowledge that surrounds the play cycle of autistic children. The complete process of play is defined alongside how this can be observed and reproduced. There is great variability in the play processes of autistic children due to it being a spectrum (Mayer, 2017), but these processes can be observed with vigilance in observation (Smith, 2017). This research has confirmed that the PCOM can be used reliably in real time to observe the play processes of children, as it enabled consistent and systematic identification of play cycles and play behaviour across observations within naturalistic settings. Overall, the use of the PCOM, paired with theoretical knowledge of the Play Cycle (Sturrock & Else, 1998; King & Newstead, 2020), has allowed the process of play to be observed and therefore the research question to be answered.

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