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Abstract

We present a conceptual analysis, grounded in empirical data, of how young children's creative play is framed by the 'pedagogic culture' within which the child is playing. Drawing on data from a research study with the broad aim of documenting children's creative play in Western play-based early childhood education, we gathered exploratory qualitative observations, self-initiated iPad video diaries and researcher-led activities to describe children's creative play. We adapted the Analysing Children's Creative Thinking Framework (Robson and Rowe, 2012) as a starting point for coding and the analysis focused on three contextual cues within the pedagogic culture - Space, Materials and Interpersonal Collaborations. We ground our discussion in a Contextualist theoretical frame to demonstrate that in isolation, each contextual cue presents a degree of framing to children's creative play. When analysed as a synergy of contextual cues, however, we begin to see that the dynamic make-up of each of the contexts, and the interplay amongst them, creates a 'pedagogic culture' that transforms children's creative play. We present 'stories' of each pedagogic culture that we observed, to describe how children's creative play manifested within each culture.

Keywords: Creativity; Early Childhood, Play, Culture, Toys and Materiality, Pedagogy

Exploring the Pedagogic Culture of Creative Play in Early Childhood Education

Introduction

This article explores how the pedagogic culture within which children are playing frames creative play. We define pedagogic culture as:

“an explicit conceptualisation, recognition and application of the ecological elements that frame the practice around play-based learning in early childhood” (Author, 2018: 4).

We present data from a museum and a nursery, in the form of ‘stories’, to demonstrate that the manifestation of children’s creative play was framed by a synergy of contextual cues – the pedagogic culture – relating to space, materials and interpersonal collaborations. These contextual cues provide insights into the kinds of questions that we need to ask when planning for a pedagogic culture that is conducive to creative play.

Importantly our analysis, informed by a Contextualist paradigm (Tudge, 2008), suggested that each contextual cue could not be understood in isolation; rather we must investigate creative play as situated within a specific pedagogic culture. We demonstrate that, in isolation, each contextual cue presents a degree of framing to children’s creative play. However, when analysed as a synergy of cues, we see that the whole is greater than the sum of the parts. In essence, the dynamic make-up of each of the contexts, and the interplay amongst them, comes together to create a ‘pedagogic culture’ that transforms children’s creative play.

Pedagogic Cultures of Early Childhood Provision

In many contemporary cultures, play is the fundamental principle of early childhood education, documented through country specific guidance, curricula and policy (e.g. Curriculum for Excellence Early Level (Scotland); Early Childhood Education and Care (Sweden and Norway); The Early Years Learning Framework (Australia); Te Whariki (New Zealand); and Reggio Emilia (Italy)). So profound is the focus on play that it is to some extent considered omnipotent in children’s development; if

children engage in play, positive development will ensue. In a similarly supreme manner, contemporary society focuses on developing and supporting creative capacities in a bid to develop analytical thinkers and develop the visionaries of the future (Creative Scotland, 2013).

As childhood is rapidly evolving in a commercial and consumerist climate, discussions around what constitutes high quality creative play are more prominent than ever. Furthermore, as increasingly complex and multifaceted ecological influences (Bronfenbrenner, 2009) shape children's development, we question whether an isolated or disconnected focus on creative play is sufficient. We articulate a view of the world where activities and practices, including creative play, cannot be separated from context (Tudge, 2008). Play is not a discrete activity but rather the projection, development and cognitive and metacognitive demonstration of children's appropriation of their particular cultural context. It is therefore essential to understand what learning contexts look like and their role in shaping children's play, before conclusions are drawn about what high quality creative play looks like.

This conceptual understanding, which moves beyond the discrete focus on play towards considering the entire framing around play, results in established traditions such as Montessori practices, Steiner principles, and Froebelian and Forest Kindergarten Approaches. Several of these approaches advocate engagement with the natural world where inanimate open-ended wooden toys or natural resources are epitomic of high quality play (Nicol, 2015). These play practices are considered to foster creativity, imagination, and problem solving, and are often positioned in contrast to modern toys and structured practices which can be seen as challenging creativity and imposing restrictions on children's learning (Yelland, 2010). The unique selling point for these early childhood centres (i.e. Montessorian, Steiner and so forth) is that play is more than simply the resources with which the child engages or the child's spontaneous activity. Rather, play is unique to each context because it is the synergistic output of a specific pedagogic culture. Play, as part of a pedagogic culture, is the culmination of carefully considered framing based on historical views of children and childhood

including notions of competence and agency (James et al., 1998), the appropriateness and potentiality of resource affordances (Gibson, 2014) and tailored scaffolding via interpersonal interactions (Wood et al., 1976).

It is this conceptual understanding of early childhood education, as something greater and broader than 'play-based pedagogy', which underpins the findings from this paper. We need to see children's play as a multi-faceted dynamic endeavour which evolves alongside society, thinking and cultures.

Space, Materials and Interpersonal Collaborations within a Pedagogic Culture

Planning for play experiences as situated within a pedagogic culture is a multi-dimensional task in which the pedagogue must consider the use of (1) space, (2) interpersonal interactions and (3) toys and resources (materials). In doing so the pedagogue scaffolds the child's experiences in proximal (face-to-face) and distal (indirectly through resources and space considerations) ways (Rogoff et al., 1993).

1. *Space*: Research highlights the impact of space, aesthetics and the division of play areas on children's learning experiences (Apps and MacDonald, 2012). For example, we know that furnishings, wall colours and ceiling height impact on behaviour (Read et al., 1999). Consequently, in many local authority run early childhood settings in the UK, there is focus on creating neutral and calming spaces which do not overstimulate children, facilitated by light open spaces, light coloured walls and natural materials for chairs and tables.
2. *Interpersonal collaborations*: Similarly, well-founded discussions are available around the importance of interpersonal interaction in learning, which was somewhat propelled in importance by Vygotsky's Zone of Proximal Development (Vygotsky, 1978) and by Wood et al.'s (1976) notion of Scaffolding. In early childhood, we begin to see what this scaffolding may look like in discussions of adult-led and child-led activities (Fisher, 2013), or through adult-structured versus free-choice play approaches to learning.

3. *Materials*: Understandings of developmentally appropriate practices in relation to toys and resources (materials), however, is still a source of debate. The evolution of children's toys and resources in modern society brings about discussions amongst childhood educators, parents and the media about 'appropriate' play practices and resources for young children's creative development (e.g. Kirkham and Kidd, 2017). The debates are embedded in scholarly explorations and public moral panics about how children's play is being re-evaluated and re-framed as part of digital, multi-modal or contemporary childhoods (e.g. Yelland and Gilbert, 2017). The discussion can be located in considerations of cultural capital and habitus as older generations grew up with markedly different experiences with their childhood toys, creating anxiety over the role of contemporary toys in early childhood (Aldhafeeri et al., 2016).

With so many complex elements of the pedagogic culture to negotiate, and so many possible variations available for pedagogic planning in relation to space, materials and interpersonal relations, we begin to see confusion, anxiety and often dichotomised portrayal of provision emerging between open and creative play practices against closed and uncreative play. For example, the contrasting options of child-led or child-initiated learning against more structured approaches to play (Fisher, 2013) can lead to an implicit hierarchy emerging with either structured or free-flow play approaches seeming more valuable for creative play. This results in confusion about how adults should interact and support play as well as ambiguity around when adults are interfering with, or facilitating, creativity as part of their interpersonal collaborations (McInnes et al., 2011).

The same anxiety and division between how to support or hinder creativity is observed in relation to the materials used in practice. For example, the dynamic evolution of toys, such as technological, digital and connected play things, creates unease in practice – often resulting in the discussions around concerns that these toys stifle creativity (Abbott et al., 2001). One reason is that the pedagogic culture is not evolving at the same rate as the resource, with practitioners and parents anxious about how to support children's creative play with new materials (Palaiologou, 2016). In

other cases, the infrastructure or bureaucracy lags behind the dynamic evolution of society in early childhood settings (Author, forthcoming) leaving practitioners feeling unable to fully support children's creative play. Perhaps they do not have access to a forest school site, their Wi-Fi is slow and unresponsive, they lack digital resources or they lack physical space to create with children. These elements of space and materials limit the practitioners' planning possibilities, impacting on the child's creative play.

Yet rather than exploring these concepts as distinct and disjointed, from a Contextualist (Tudge, 2008) perspective, we must acknowledge that the situation in reality is more dynamic. All of these elements must come together in a synergistic manner to result in a pedagogic culture conducive (or not) to creative play. We cannot causally attribute children's learning and development to a specific resource or a particular approach to teaching. We need to consider how multiple elements of the pedagogic culture – spaces, materials and interpersonal collaborations – come together to shape children's creative play. Thus, this paper was guided by the following research questions:

1. What are the characteristics of children's creative play across pedagogic cultures?
2. In what ways does the pedagogic culture – consisting of spaces, materials and interpersonal collaborations – shape children's creative play?

Theoretical Frame

Contextualist models explore a range of contexts or 'social worlds' as well as micro factors *within* contexts. The emphasis focuses on the *connections* between micro aspects of context. Thus, context is more than just the people and the things in the setting but includes historical and cultural influences on activities. It involves a relativist interpretation of multiple realities dependent upon the 'social, economic, cultural and historic nature of the group under consideration' (Tudge et al., 2009: 118). Activities will therefore vary depending upon the make-up of the individuals, the setting and the cultural and temporal context (Tudge et al., 2006; 2009).

This framework is closely linked to socio-historical perspectives that positions the child's development and culture as inextricably linked - meaning that they are interdependent and constantly evolve and adapt. We draw on the principles of cultural experience to position the context within which children are playing as a lived culture. This culture is carefully framed by pedagogical decision-making in relation to space, materials and interpersonal interactions. Here we see that this lived culture of creative play cannot be understood without first understanding the context within which it occurs. Furthermore, it suggests that there is not one singular pedagogic culture, but rather an array of unique pedagogic cultures related to the composition of space, materials and interpersonal collaborations. We use this principle to investigate how the various contextual cues within the pedagogic culture contribute to the characteristics of creative play exhibited by children.

Methodology and Methods

This study used data collected from a local nursery and a local science museum. These research sites provided two contrasting spaces to explore children's creativity. The contrast in spaces was opportunistic in that both the nursery and the museum staff were excited and felt that children would enjoy taking part. The contrast in the environments was not purposeful; rather its significance became clear during the data analysis process.

Nursery: The nursery context could be described as a playful group setting where children were free to move around between two separate rooms with an adjoining foyer. The environment was vibrant, noisy and rich in materials (in addition to those provided by the research team) and large play equipment. The child-led and child-initiated pedagogical approach of the context meant that the number of children in each room continually changed; varying from two children up to 10 in one instance. Research visits stemmed across four mornings, each lasting approximately three hours.

Local science museum: The local science museum is an interactive discovery centre targeting children and families. The observations were conducted in a specific room ('The Pod') which was not

open to the public during our visits. It was quiet, with little distraction. Few resources, other than the ones provided by the researchers, were available. Two full day visits were conducted resulting in rich and detailed data.

The research involved approximately 25 three-to-five year old children. A qualitative approach (Creswell, 2012) was adopted where children's perspectives and experiences are valued and sought through child-centred methods and used as effective means for gaining a deeper understanding of the creative process. We sought to align our research approach with child-centred pedagogic principles and as such it was necessary to be flexible and fluid in our approach – responding to children's interests and questions. We did not intend to design a structured or controlled experiment; instead our methods were as naturalistic as possible within the parameters of the two contexts.

Ethical approval was sought from the authors' institutional Ethics Committee and the study was conducted according to the Scottish Educational Research Association Ethical Guidance (SERA, 2005). Written consent was sought from local authorities, staff and parents. Children's assent was conditional, based on their willingness to participate, converse and engage in activities. The research conditions also provided opportunities for children to voluntarily participate and withdraw at any time. To ensure the confidentiality of participants, pseudonyms were used and images were converted to sketches.

The context for understanding creativity was children's construction play because practical application is a means of fostering creativity (Wheeler et al., 2002). In both settings, the researchers brought a variety of open-ended and closed-structured construction resources to explore children's creativity as part of their everyday play. Open-ended resources included: (i) traditional Froebelian construction blocks, (ii) natural tree logs, and (iii) loose pieces of fabric. Closed-structured resources included: (i) two sets of plastic colourful gears that could be assembled in a variety of interlocking

ways, and when connected 'correctly' could be remote controlled, and (ii) Meccano Motorised Box – a set of individual pieces which could be assembled into remote controlled vehicles.

Methods

Three methods of data collection were employed across both the settings (See Author et al., 2016 for more detail):

1. **Systematic observations** provided an extended narrative of children's creativity from the researchers' perspectives. Pairs of researchers conducted observations and analysis offering a form of inter-rater reliability.
2. **Self-initiated iPad video diaries** used innovative video diary software to pre-record a set of interview questions for children to answer and discuss their creations and creative decision-making in a self-directed manner.
3. **Researcher-led activities** aimed to access children's voice in relation to creativity (Christensen, 2004). These included:
 - I. *Paper-based storyboards*. Children used stickers produced from photos of their play during previous visits to create a storyboard describing their creativity. Researchers annotated the storyboard with the child's commentary.
 - II. *Video-booth storytelling*. With the use of hand puppets, children recorded 'stories' about their constructions. To avoid issues with retrospective recall (Morgan, 2007) they could bring their creations into the story.
 - III. *iPad storyboards*. Children used iPads to take photos, record video or audio narratives and add text to produce a storyboard describing their creativity.
 - IV. *Participatory construction play*. Researchers played alongside the child, asking questions and generating conversations about their creativity.

Analysis

Observations were transcribed verbatim, then coded using a bespoke developed codebook adapted from the Analysing Children's Creative Thinking (ACCT) Framework (Robson, 2014). The ACCT framework was chosen as the starting point for the codebook because of its usability for analysing creativity with observation and qualitative data in a play-based voluntary manner. The categories and operational definitions offered useful 'a priori' codes for analysis of narrative observations and video transcriptions in relation to creativity specifically.

The ACCT, however, lacked a focus on the contextual cues that shaped creative play and thus an iterative inductive approach relating to the three themes of space, materials and interpersonal collaborations was adopted for the remaining analysis where additional codes were grounded in the data. This provided a coherent link between analysis and our Contextualist theoretical frame. Four umbrella categories for analysing children's creativity emerged: Engagement; Persistence; Involvement and Enjoyment; and Creative Design.

*****Table 1: Coding Structure for Creative Play: Extending ACCT (Robson, 2014) from a Contextualist Perspective.

Findings

The pedagogic cultures observed in this study were instrumental in framing children's creative play. The pedagogic culture signified the planning for play opportunities created by adults: the practical implementation of the ecological elements that frame the practice around play-based learning in early childhood. In this case, the planning was conducted by the researchers but the activities mirrored traditional early years play. We present our data according to the three contextual cues framed in the early parts of this paper: *space, interpersonal collaboration and materials*.

We begin with a brief overview of how children's creative play manifested across these contextual cues. Subsequently, we articulate how these cues come together in a synergistic manner to develop

a pedagogic culture and associated creative play. Importantly, we demonstrate that pedagogic cultures are dynamic and evolving – they are context specific and unique to each child, and therefore messy. The examples we present below are sometimes contradictory but this speaks to the complexity of a Contextualist project where the various elements of context are inseparable and intertwined. We do not provide a definitive typology but rather give a fluid frame of reference to consider some possible ways in which the pedagogic culture could emerge and potentially impact children’s creative play.

Describing Creative Play within Contexts: Space, Interpersonal Collaborations and Materials.

Space is characterised in the broadest sense by the distal pedagogic framing in planning (Rogoff, 2008). Here we see space as both physical but also implicit as we set up the boundaries of the play space (Canning 2007). Table 2 synthesizes the main elements of *Space* mapped against the manifestations of creative play observed according to our codebook.

CHARACTERISTICS	SPACE 1: NURSERY	SPACE 2: SCIENCE MUSEUM
ENGAGEMENT	<ul style="list-style-type: none"> Free-choice and free-play time, within their normal nursery day. 	<ul style="list-style-type: none"> Free access as part of their visit to science museum. No appointment or timescales, except those imposed by parents.
CREATIVE DESIGN	<ul style="list-style-type: none"> More resources utilized; more crossover and mixing of toys, resources and equipment. Conventional and unconventional themes emerging in play: <ul style="list-style-type: none"> Building towers and traditional structures. Using imagination to create play themes and 	<ul style="list-style-type: none"> Resources mainly used separately (no cross-over). Conventional and unconventional themes emerging in play: <ul style="list-style-type: none"> Building towers and traditional structures. Using imagination to create play themes and agendas e.g. guns/baking etc.

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- Outside Stimulus:

- Larger rooms but lack of open spaces.
- Brightly coloured resources and wall displays.
- Fewer tangible outputs- more unfinished/incomplete 'tasks'.
- Noisy, lively environment.
- More choice of stimulus - more distractions
- High familiarity - children attended on a regular basis (daily/weekly)

- Pre-planned and determined play themes from previous days or activities, which have been carried forward.
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- Outside Stimulus:

- More space - less clutter
- Brightly coloured wall paintings
- More tangible and completed outputs.
- Quiet environment.
- Children had to seek out stimulus from manuals or people - few distractions
- Low/Medium familiarity - children may attend the museum regularly but the room was set up specifically for this task.

- Children draw on experiences and apply the knowledge into the play.

PERSISTENCE

- Various levels of challenge available due to the multiple *possibilities* for play experiences.
- Limited variation in challenge determined by fewer *possibilities* for play experiences.

INVOLVEMENT AND ENJOYMENT

- Mainly peer-peer collaborations
- Mainly adult-child collaborations - Children asked for help from an expert other

- Inter-subjectivity in play themes.
- Intersubjectivity in problem solving.

The science museum's tranquil atmosphere (see Figure 1), large space (within the confines of a contained, early years room), with the lack of clutter, few other children or people and a free-choice pedagogy, resulted in children becoming immersed in creative play for extended periods. In contrast, the nursery environment was busy, noisy, packed with many resources and many children resulting in predominantly fleeting creative play (See Figure 1).

Figure 1: Comparison between science museum and nursery spaces



To articulate this fully and demonstrate the differences in the characteristics of creative play it is essential to consider how we define creativity. Craft's (2002) description of Little C and Big C creativity is particularly useful in understanding this distinction. The former predominantly relates to 'process' (the child's ability to engage in possibility thinking and ask 'what if' questions); while the latter moves towards the focus on original and unique knowledge and outputs. It was apparent in our data that the output driven creativity (leaning towards Bigger C creativity) was more prominent in the museum context as children spent considerable time 'completing' a construction, engaging in

considerable persistence in their creative design. In the nursery context, however, we saw the Little C creative process in full flight at a very fast pace.

Interpersonal collaborations were underpinned by proximal interactions and framing in the form of adult-child and child-child interactions, which contributed to manifestations of creative play. Table 3 synthesizes the main elements of the interpersonal collaborations and the codes for creative play observed. The main characteristics around adult-child interactions were structured sustained engagement. In comparison, child-child interactions were typically vibrant, flowing, open, unstructured and dynamic engagements. There were also episodes where children play independently.

CHARACTERISTICS	ADULT-CHILD	CHILD-CHILD
ENGAGEMENT	<ul style="list-style-type: none"> • Sustained attention on Bigger C creative output. • Slow, considered play 	<ul style="list-style-type: none"> • Sustained attention on little C creative process rather than output driven – focus on exploration • High Energy Fun - Fast movement between activities, play partners and resources – fleeting attention.
INVOLVEMENT AND ENJOYMENT	<ul style="list-style-type: none"> • Predominantly Sustained Shared Thinking /Guided Participation (Rogoff). • Collaboratively creating/building - Adults as guides and facilitators rather than play partners. • Established relationships and collaborations. • Children quick to request help from an adult. 	<ul style="list-style-type: none"> • Some Sustained Shared Thinking (e.g. when working toward specific outcome with construction resources). • Involving many/variety of play partners. • Children quick to include and volve others but not necessarily to 'help'.
CREATIVE DESIGN	<ul style="list-style-type: none"> • Questioning from the adult on how to progress with the logical process of the build. • Child verbalises knowledge of the resources and seeks recognition from adult. • Imaginative responses to questions from adults - at 	<ul style="list-style-type: none"> • Multiple children's varied ideas as children enter and leave the play frequently. • Some discussion about their knowledge of the resource. • Mostly imaginative ideas about how to develop a play theme.

	<ul style="list-style-type: none"> • times dismissing adult suggestions. • Output driven - adult's focused on supporting children's creation of a finished product 'what shall we build'. • Safe and purposeful play. 	<ul style="list-style-type: none"> • Only occasionally building/creating a predetermined project. • Willingness to take risks
PERSISTENCE	<ul style="list-style-type: none"> • Perceived increased challenge discouraged by parents - children encouraged to move on to easier/quicker tasks. • Resilience 	<ul style="list-style-type: none"> • Variety in level of challenge exerted among children. • Occasional resilience

For both adult-child and child-child interaction, the code 'Sustained Shared Thinking' (Sylva et al., 2004) was evident but in a different nature. For adult-child interaction, the Sustained Shared Thinking revolved around a common understanding of what was required to complete the build of a pre – planned construction with the methodological approach employed. For child-child interactions, the Sustained Shared Thinking focused around collaborations to develop a central or common play theme, and a high-energy exploratory evolution of ideas fuelled the creative play. For example, the adult-child collaboration may involve building a castle or building the Ferris wheel out of the closed-structured materials. In contrast, the child-child interactions involved Sustained Shared Thinking about a role play scenario encompassing multiple elements of the materials. The focus again speaks to differences in Bigger C or Little C creativity. The general characteristics which underpinned the creative play may be the same but the manifestation of creativity is different.

The Material Context is underpinned by the affordances (Gibson, 2014) of the open-ended materials and closed-structured construction materials; the former had no predisposed purpose but could be integrated in multiple ways, while the latter was part of a 'design pack' so you had enough pieces to complete the construction. These were interchangeable with other design packs (similar to Lego) so there was the possibility to deviate from the plan, if desired. Table 4 synthesizes the main

elements of the resource context and the codes for creative play. The main distinctions between material resources related to children’s different manifestations of creative play through varied levels of engagement and persistence.

CHARACTERISTICS

	CLOSED STRUCTURED CONSTRUCTION	OPEN ENDED MATERIALS
ENGAGEMENT	<ul style="list-style-type: none"> • Exploration of resource and affordances • Methodical • Lengthy sustained play • Deconstruction (methodical) 	<ul style="list-style-type: none"> • Exploration of creative outcomes • Opportunistic • Fleeting attention and movement between resources - High level of excitement • Deconstruction (spontaneous – such as boisterous tumbling towers)
INVOLVEMENT AND ENJOYMENT	<ul style="list-style-type: none"> • Questioning – what can it do/how does it work? • Requesting help 	<ul style="list-style-type: none"> • The resource formed part of the larger play theme – how it can be integrated and used as a prop. • Independent of adult support
CREATIVE DESIGN	<ul style="list-style-type: none"> • Story telling Imaginative Transgression of resource roles • Task completion • Conventional and unconventional uses. • Spatial stimuli • User manuals for each individual design kit • Low familiarity – new resources presented to the children. • Creative outputs – pre-planned • Rule maintaining 	<ul style="list-style-type: none"> • Storytelling • Imaginative role play • Architecture and design • Conventional and unconventional uses. • Spatial stimuli. • Fully open ended construction resources and materials. • High familiarity, traditional play toys typically available in nurseries and early childcare (puppets, Froebel blocks, tree logs). • Spontaneous play - Creative outputs not planned • Rule breaking
PERSISTENCE	<ul style="list-style-type: none"> • High level of challenge • Little risk taking 	<ul style="list-style-type: none"> • Low level of challenge leading to high depending upon how elaborate the play theme developed. • High level of risk taking.

Children sought out help using the closed-structured construction resources more so than with the open-ended construction resources. In almost all cases, these interactions were about asking for help and guidance around how to build a certain construction, how to fix a piece of closed-structured construction that had broken or stopped working, or how to operate the iPad.

Anna says “nana nana can you help me make a roundabout”

Gran – “ok.” [...] Gran helps Anna use the manual to construct something. They look at the book and gather the pieces that they need to use. They continue to look for pieces for a long time.

(ScienceMuseum0703LA)

With time and experience, familiarity with the closed-structured resources increased. Eventually children became confident in ‘breaking the mould’, so to speak, and using the resources in innovative ways that did not replicate the handbook instructions. The resources then became integrated as familiar resources, which, when coupled with the children’s increasing knowledge and perceptions of the affordances of the resource, ultimately shifted the dynamic of the pedagogic culture, impacting on the manifestations of children’s creative play.

Stories of Pedagogic Cultures

Across the contextual cues addressed above - the materials, interpersonal collaborations and space - the contribution to the ways in which children engage in creative play was dynamic and context specific, relating to previous work on ecological contexts (Author, 2016). To holistically describe each contextual cue independently proved challenging because of the inseparability of the elements. There were situations where the creative play manifested very differently, but in other instances, the differences in the manifestation of creative play were incredibly nuanced, in large part because of the significance of the interplay between these various contextual cues. It quickly became clear when analysing the data that the interweaving of these contextual cues together amounts to a pedagogic culture that shapes children’s creative play experiences. It became impossible to articulate the characteristics of children’s creative play and the influences shaping the creative play,

without holistically considering the pedagogic culture as a whole. We demonstrate this interplay across and between contexts in the form of three stories of pedagogic culture.

1. Story One offers a discussion of child-child interpersonal collaborations in the nursery space with the open-ended materials. It demonstrates that this combination of contextual cues results in a pedagogic culture where we observe high levels of possibility thinking and Little C creativity. The children were focused on creative processes rather than pre-planned novel products or outcomes.
2. Story Two offers a discussion of adult-child interpersonal collaborations in the museum space with closed-structured construction materials. It demonstrates a pedagogic culture linked to Bigger C creativity where the creative play manifested through problem solving to create a novel output.
3. Story Three offers a discussion of child-child interpersonal collaborations in the nursery space with closed-structured construction materials. It demonstrates that this synergy of pedagogic culture offers routes to exploration and tinkering, yet another manifestation of creative play.

In presenting these stories, we begin to show that creative play is unique to each context. Here we begin to see that implementing play-based pedagogy broadly is insufficient to understand how to frame creative play. Rather we need to take a broader Contextualist perspective to understand the differences in the manifestation of creative play across pedagogic cultures. The stories demonstrate that creative play is not a causal output of specific framing but is indicative of the multi-dimensional elements of the pedagogic culture that are experienced differently for each child. Viewing the pedagogic culture as a synergistic whole therefore explains some of the messiness in trying to unpack children's experiences.

The first story of pedagogic culture related to the synergy of child-child interactions in the nursery with open-ended resources. The free-choice pedagogic principles that underpinned practitioner planning and child-centred play meant that many children were present in this play space at one time. The result was fleeting engagements with a resource and transitory play themes. Children moved on from activities very quickly, and were drawn to different activities by invites from other children. They rarely engaged in pre-planned builds. Rather they found enjoyment in a cyclical process of exploration phases leading to spontaneous and fleeting outputs, which would then evolve quickly into new constructions. Play processes and themes were prioritised and less emphasis was placed on the structured approaches or outcomes. For example, the children found a place for the resource within their imaginative play theme rather than finding a theme around the resource. The scaffolding came from a pedagogic culture in the form of freedom of discovery, multiple interactions, opportunities for exploration and trial and error, facilitated by free movement of children and resources.

Blocks offered a freedom that the motorised construction resources did not. Indeed, a case study specifically focusing on early years settings highlighted that formless materials can be conducive to creativity rather than more prescriptive resources favoured by older children (Bancroft et al., 2008). Our observations suggest this is due to both familiarity with open-ended resources such as the wooden blocks, and their simpler or less prescribed form as they do not 'connect' in specific ways. This allows children to quickly and efficiently construct towering structures and stack and combine the blocks in endless ways (Figure 2).



Figure 2: Endless possibilities

This cumulates into the perspective that this particular pedagogic culture focused on possibility thinking and Little C Creativity (Craft, 2003); using resources in imaginative ways. It was facilitated by a lively and vibrant dynamic, a bustling environment filled with peers and high energy interactions with spaces, materials and people.

Story 2: Problem Solving and Novel Output (Bigger C Creativity).

In this story of pedagogic culture, we explore the intersection of closed-structured construction resources in a tranquil museum context with adult-child interactions.

The children were free from external distractions and only influenced by their parents. In all but one case, parents were happy for children to remain in the play space for as long as the children wished (sometimes lasting up to one hour). All of these things combined resulted in more sustained engagements, over time.

The children focused on creative outputs in the sense that children actually verbalised a pre-planned idea, set about putting it into production and completed what they set out to build. The process was more structured and methodical (e.g. Figure 3), purposeful with the intention of completing the task, focused on fostering structured uses of resources, linked closely to their affordances and closely aligned to the intended purpose of the resources.



Figure 3: Example of the methodical practice of deconstruction (Mother and Daughter, science museum)

In almost all cases, the resource became the central focus of the play. It became a task that should be completed before moving on to something else. In some cases, adults directed the play, in others the child took the lead but in almost all cases, there was an understanding that they were playing within the confines of the affordances of the resource, such as building a remote control fair ground with the motorised closed-structured construction toys. In only one instance of adult-child interaction did they engage in transgression (linked to Marsh et al., 2016: definition in a digital context) and use the resources in unconventional ways and transform the activity into a role play scenario (using the Meccano as a doctors kit and petrol pump). This evolution of play focus was initiated by the child. There were no instances of adults initiating a suggestion that resources could be used in any way other than their intended purpose.



Figure 4: Mother and Daughter exploring the closed-structured construction resources

The creativity described in Pedagogic Story 2 is closer to Big C creativity to reflect the focus on production of outputs and products. We argue that this is better labelled 'Bigger C' creativity to reflect that this is still a learning process for children and not a finished product. This dimension of creative play appeared to be facilitated by a pedagogic culture instilled with relaxation, free mobility and access to resources, Sustained Shared Thinking in relation to a planned build and problem solving. All of which focused around perceived affordances of the resources, combined with time for quiet contemplation and the presence of an expert other.

Story 3: Foundations to Creative Play

The third story of pedagogic culture describes the intersection of child-child interactions with closed-structured construction toys in the nursery context. Children were less familiar with the resources and the children were quick to abandon the resource and move onto another activity. This complexity arises from the difficulties inherent with planning and creating when using resources

with which one is unfamiliar. This was primarily due to the fact that motorised playsets are idiosyncratic with intricate, complex features that vary across brands. For this reason, exploration is essential in order to familiarise oneself with new or more complex creative tools. Children tested the ways in which pieces fit together, explored how pieces could be deconstructed, and manipulated parts by pressing buttons, pulling the spring-like features, and playing with the fibre optic strands.



Figure 5: Exploration of closed-structured construction toys

Through this extended process of exploration, the children gained an understanding of what each button and resource did, and how they could manipulate each object for their desired creative purposes. It is only once the knowledge and understanding of the resources' potential is acquired can one begin to be creative and push boundaries, risk take and use imagination (Compton et al., 2010).

Emily says the robot isn't working because only one cog is turning. She presses the button on the remote....She adds some more cogs to the central moving part and then tests it again using the remote. She spins the other cogs using her other hand as they are still not turning. She then tries to make the robot stand up. It doesn't stand independently. She looks quizzically at it. 'Maybe it's not standing

because it doesn't have legs!?' She then takes some cogs and adds them to the bottom of the structure. Alas, it still does not stand.

Emily playing with construction resources (Nursery observation)

Due to children's unfamiliarity with the affordances of the closed-structured construction resources, they looked to external stimuli to guide their play. External stimuli were required to foster creative outputs and constructions with closed-structured construction resources. They used the handbooks or looked at the box to understand its potential.

Pedagogic Story 3 presents a reflection on the kinds of pedagogic planning required in order to foster creative play. Children need time to engage with the resources – deconstructing and manipulating resources to learn about their affordances - before creative play can evolve and progress. This dimension of creative play appeared to be facilitated by a pedagogic culture inherent with challenge and difficulty. This was because the materials were complex and required knowledge of the mechanical working of the cogs as well as logical planning in relation to how to assemble the pieces. As such this pedagogic culture instilled a sense of novelty and the unknown as children were left to discover amongst themselves in a child-led, free choice space.

Conclusion

These findings suggest that creative play took different forms across pedagogic cultures. The data does not suggest that children only engage in one form of creative play in each pedagogic culture, but rather that each pedagogic culture in our study supported different manifestations of creative play at that particular snapshot in time as shaped by the interplay of contextual cues. The pedagogic cultures did not dictate whether or not children were creative; rather that the nature of children's creative play varied depending upon the composition and framing of the pedagogic culture. In some cases, we saw high levels of possibility thinking and Little C creativity, particularly when the pedagogic culture comprised of resources that were highly familiar to the children, in a vibrant and lively space, involving child-child collaborations. In other cases, the creativity revolved around problem solving and developing novel creative builds and outputs - Bigger C creativity - for example

when the pedagogic culture framed the play in a tranquil quiet space, with unfamiliar and challenging resources and where children were supported by adults. Alternatively, there were times when the pedagogic culture needed to be re-evaluated and reflected upon to understand whether it was effective in supporting the progression of creative play and to avoid children being stalled in the process. For example, in 'Pedagogic Culture 3', children were unfamiliar with the resources and needed adequate time and the support of an expert other to frame the creative play.

If we explore this further by comparing Pedagogic Story 3 with Pedagogic Story 1, we begin to see that, despite the stories describing the same interpersonal collaborations, and the same space context, each Pedagogic Culture placed different demands on the child on account of the different levels of familiarity with, and affordances of, the resources. This in turn, resulted in very different forms of creative play. Here we see the importance of Compton et al.'s (2010: p29) findings:

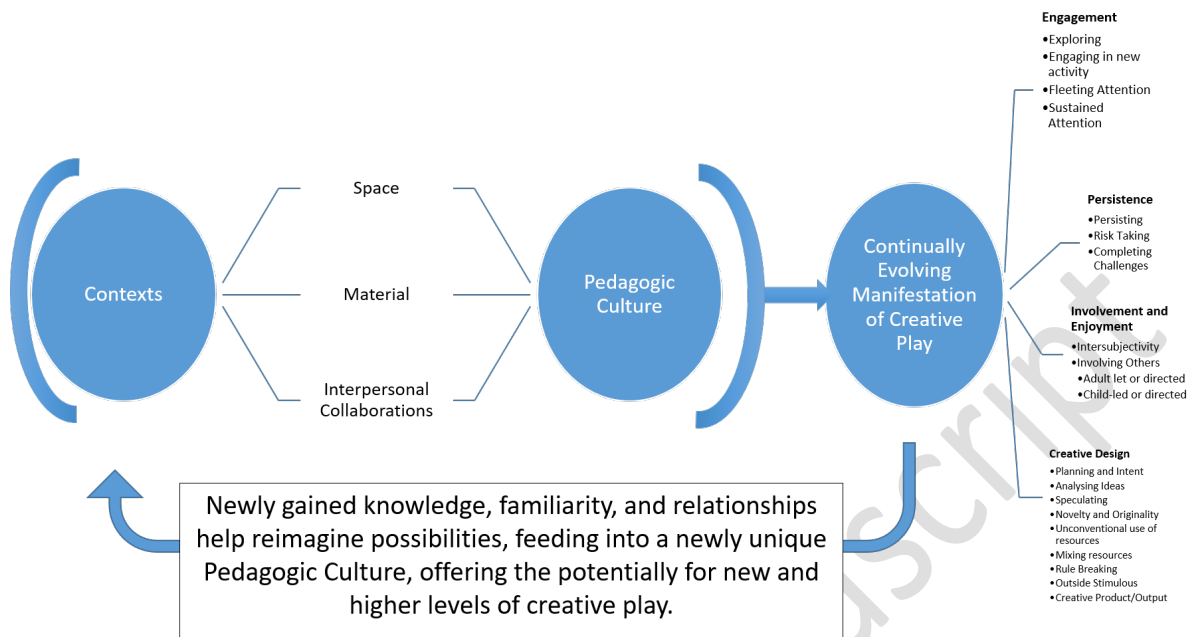
"The need for exploration is fundamental when reflecting on children's creativity play around novel resources. Extensive exploration, questioning, evaluating the potential of the resources is required, and was observed. With growing familiarity with resources and increasing knowledge and confidence in their use, children can function at higher layers of creativity. The lower layers of creativity provide the foundation for the higher layers."

Yet more than this need for space and exploration, pedagogues must be mindful of the changes that must be implemented across different pedagogic cultures in response to the creative design, level of support needed, level of engagement and involvement, and level of persistence, in order to support different manifestations of creative play. Practitioners can facilitate various aspects of creative play by considering or tweaking the make-up of the pedagogic culture. For example, reflecting on how the interpersonal collaborations (i.e. the adult or child's ability to scaffold the creative play in times of need), the materials (the challenge and familiarity associated with the resource) and the spaces (creating a space for concentration versus high energy exploration) all influence children's thinking, engagement and interactions during the creative process.

This analysis must not stop at an isolated contextual cue level. Instead, we must consider how these elements intertwine within a multidimensional pedagogic culture to create new manifestations of creative play. Just as the children need time to explore and become familiar with the affordances of the resource to engage in higher levels of creative play, so to do we need to become familiar with the impact of a specific pedagogic culture through observation and analysis. This requires thoughtful consideration of observations over time to reflect on the nuanced differences in children's manifestations of creative play and to understand what proximal and distal factors (Rogoff et al., 1993) can be put in place to enhance the creative play going forward.

The differentiated manifestations of creative play across pedagogic cultures become particularly important when making sense of our data because they provide a frame for questioning pedagogic planning. We do not present a typology that guarantees a specific manifestation of creativity if replicated. Our epistemological stance stems from co-constructivist thinking and suggests that children never experience a pedagogic culture in a unified manner. Children's interpretations and reproduction of the culture will shape the manifestations of creative play that emerge. Children's experiences of the pedagogic culture can develop over time, demonstrated through the importance of 'familiarity' in shaping the creative play. For example, when faced with novel and complex resources, children must engage in a process of exploration. Thus the children continually reshaped the pedagogic culture with their increased knowledge and experience of the play process (Corsaro, 1993). The model is therefore not directive, but presents an understanding of some of the major contextual and cultural factors which practitioners could draw on to begin to understand how creative play may manifest in practice. In essence, we see creative play as a dynamic, multi-faceted and relational process, shaped by the pedagogic culture, as depicted in Figure 6 below.

Figure 6: Manifestations of children's creative play within the pedagogic culture



What is clear from the data and in relation to pedagogic planning is that creativity, in Education, is considered to be the interplay between 'novelty' and 'usefulness' (Leggett, 2017). For early childhood, this implies that pedagogic planning is driven towards some level of assessment of young children's creative value and a focus on outcomes, rather than the current pedagogic perspectives that learning starts with play experiences not predetermined outcomes. Yet, in early childhood Education, the focus is often on creative processes rather than a physical output. In other words, although construction of some kind may be encouraged, the children are not assessed on the quality of the output produced but rather their learning journey leading up to its production. This approach to creativity marries with typical early childhood pedagogical principles which encourage child-centred and child-led learning experiences (Woods, 2017). Within this context, the exploration of pedagogic cultures in a holistic manner provides a useful frame to understand the ways in which creative play may manifest.

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