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'When are we going again?' Investigating children's responses to a new nature playspace at an environmental education centre

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Nature play programs, mostly instigated by early childhood education services, are rapidly expanding across Australia drawing on various international approaches to create uniquely Australian programs. But, as yet Australian research to support this expansion is at best emergent (Christiansen et al. 2018). Through collaboration between a NSW Environmental Education Centre (EEC), nearby preschool/ school communities and university researchers a new nature playspace was developed. The participating regional EEC mostly offered environmental education programs for primary school-aged groups and a nature playspace was proposed to align with learning approaches, particularly for younger groups of children aged 3–8 years. The playspace was created in open eucalypt woodland with a grass understorey and locally-sourced natural materials were added including rocks, logs, bones and soil to create play areas such as a dirt hill, balancing logs and a bone sandpit.

Our research aim was to explore both children's and teacher's perceptions about the nature play affordances in the new playspace, however only children's responses are reported here. The research was underpinned by Gibson's theory of affordance (1986), the United Nations Convention of the Rights of the Child (UNCRC) (UNICEF 1989) and a social constructionist epistemology (Guba and Lincoln 2005). Further, Mosaic methodology (Clark and Moss 2001) facilitated data collection both *with* and *by* children through walking interviews, focus groups and photography which prioritised their voices. Both preschool and early year's school groups played on-site weekly over six-weeks and an on-site EEC teacher as Research Assistant (RA/EEC teacher) recorded in a research field journal throughout. This article outlines child-focused research insights that may shape the development of nature playspaces and programs.

Contextualising nature play in the literature

We are now witnessing a re-emergence of childhood nature play as a global movement instigated by Gill (2011), Louv (2008) and others. In Australia, while early childhood service playspaces have become increasingly naturalised over recent decades, only since 2011 have state government 'Nature Play' initiatives and localised programs including bush kinders, forest schools and nature playgroups been established (Christiansen et al. 2018). Concurrently, there is a questioning of romanticised notions of the child in nature (Taylor 2013) and post-humanist researchers now offer a different relational theoretical frame (Nxumalo 2018; Rooney 2016). This frame is more aligned with sustainable futures and takes nature play beyond the romantic to be core business for addressing global environmental issues. Also, we are aware of some reported tensions around translating international approaches for Australia (Christiansen et al. 2018; Leather 2017) thus, the benefits and potential of Australian nature play programs in varied and uniquely Australian settings are still to be investigated. Hence, in this study we examined both children and teachers' perceptions of nature play affordances in a new Australian EEC nature playspace.

International studies have predominantly drawn on forest preschool/school programs in the United Kingdom over the

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last decade to well document the benefits of nature play. Children's increased confidence, motivation and concentration, expanded social, physical and language skills, deeper conceptual understandings and respect for the natural environment are cited (Gill 2011; Knight 2013; Malone and Waite 2016). Earlier work by Fjortoft and Sageie (2000), among others, also found that natural playspaces with loose parts and varied topographies communicate higher affordances and more creative play opportunities for children. Significantly, nature play benefits accrue following repeated nature experiences. For example, in the United Kingdom and Australia, it appears that over six weekly visits children often settle into new spaces and create sustained play scenarios (Elliott and Chancellor 2014; Knight 2013). Additionally, teacher participants in a New Zealand study (Kelly and White 2013, p. 39) repeatedly mentioned the importance of sustained time in nature for children to 'become familiar with the space'. They identified a slowing down of pace as critical with flexible time to explore and discover natural settings. Similarly, in an Australian study (Elliott and Chancellor 2014) a teacher described a slower pedagogical pace that invited deepening relationships and sustained conversations akin to Payne and Wattchow's (2008) 'slow pedagogy'. Such a pace promoted the embodiment of place for children over time. In summary, Malone and Waite (2016) advocated for longitudinal studies to fully examine the transformative aspects of nature play; in essence, nature play happens over time and it is not to be hurried. This study responds to their plea.

A further contributing factor to the instigation of this study was the paucity of research undertaken in long-established Australian EECs. Centre programs are typically teacher-directed and align strongly with national curriculum priorities (ACARA 2011). Only one reported early years Australian EEC study was located (Gambino et al. 2009); however, that program offered a one-off structured adult-directed activity rather than unstructured and repeated nature play opportunities. Hence, we identified a need to progress understandings of nature playspaces as potentially integral to EEC programs, particularly with early years' cohorts, as well as report to a wider professional audience.

The above study contextualisation is not exhaustive of international nature play literature; but, we recognise a particular gap in Australian EEC research, especially where a multiple session program is offered. Thus, aligned with the UNCRC (UNICEF 1989) in which children's insights and perspectives are prioritised and by adopting social constructionist epistemologies (Guba and Lincoln 2005), we sought to explore and reveal in the new nature playspace:

• What play affordances did children perceive?
• What appeared to characterise their shared reasoning?

While affordance theory (Gibson 1986) underpins this study, we note the immediacy limitations and align with negotiated and transformative affordances through ongoing action in material and cultural contexts as proposed by Pedersen and Bang (2016). Following we outline the methodological approach, methods, analysis and then findings. Finally a concluding discussion focuses on emergent themes and practice implications for the professional field in Australia and beyond.

Mosaic methodological approach and specific methods

The Mosaic methodology identifies children as active researchers (Clark 2005); embodies the UNCRC (UNICEF 1989); and, describes children as experts about their experiences (Barratt Hacking et al. 2013). Further, Greenfield (2011) identifies three underpinning methodological principles: a belief that children have worthy ideas and feelings to share within research; a commitment to instigating ongoing positive and professional relationships in the children's setting; and, a responsive, flexible approach to research engagement with children.

The invited two groups of children were from a local preschool (10 children aged 3 to 5 years) and primary school (26 children aged 6–8 years - Year 1/2) and each group visited the EEC weekly over six consecutive weeks. The participating children, accompanied by their teachers, were engaged in child-directed play in the nature playspace for one and a half to two hours on each visit. During the four initial visits, the RA/EEC teacher observed, documented and interpreted children's play with field notes and photographs. This reflective journaling offered insights into the evolving play scenarios with each successive visit. In addition to formal ethical consent by parents, the children's assent was sought by the RA/EEC teacher prior to taking photographs and children were also invited to take photographs using the RA/EEC teacher's IPad. These initial visits ensured the RA/EEC teacher was readily visible in the setting, built informal conversational relationships and children informally practiced IPad skills.

Child-directed data were collected during the fifth and sixth visits after the children had become familiar with the RA/EEC teacher and the playspace. The children's perceptions of play affordances were elicited through child-led tours or 'walking interviews' (Greenfield 2011, p. 112) in self-selected pairs with the RA/EEC teacher. A total of 31 'walking interviews' were conducted. The children were invited to show the RA/EEC teacher what they identified as the 'best' places to play and articulate their reasoning. The conversations were audio-recorded and images of 'best' places were captured by the children with IPads. The audio-recordings were subsequently transcribed and the text collated with the children's photographs.

Within the week following the final nature playspace visit, the RA/EEC teacher conducted a brief reflexive focus group with all the child tour pairs in groups of six to ten in their usual educational settings. The aim was to share and prioritise their images, perceptions and reasoning. The children's photographs offered a stimulus for discussion, inviting collective reflections about their findings in a group setting. These sessions provided an opportunity to clarify adult data interpretations and to reaffirm or refute the children's previous prioritization of particular play affordances. The focus groups were audio-recorded and transcribed.

Data analysis approach

We employed NVivo 11 to organise and code the transcript data from the walking interviews, focus groups, plus the reflective journal. Together, researchers reviewed the data sources, then developed a coding matrix with tentative definitions for a-priori codes. This coding matrix guided data analysis and was refined as new codes emerged. To ensure rigour and reduce bias, two researchers independently coded the same 10 interviews then compared coding. An inter-coder reliability score of 82% was calculated and inconsistencies were mostly due to differences in coding style. A common approach to coding was negotiated and remaining data sources allocated and coded. The researchers then queried the data using NVivo 11. The analysis mainly focused on identifying children's perceptions of the nature play affordances and their reasonings. In the following section, we present findings from our analysis including an initial overview of their perceptions and reasonings, and then, two vignettes specifically illustrate examples of children's sustained and evolving engagement at two of the most popular sites over time.

Findings: children's perceptions, reasoning and engagement

A strong preference for various muddy combinations of sand, soil and water was most evident; however, somewhat unexpectedly the mud kitchen was one of the least popular sites. Children's most popular perceived sites for nature play affordances included the rope swing, the muddy waterhole, the dirt pile, the water trickle hill, the leaning log and the sandpit with bones. The least popular perceived sites included the bamboo plantation, the tree blocks and rocks and the mud kitchen, while a few sites did not rate any mention, such as the balancing log and a timber frame for cubby-building.

Further, we identified how children referred to the different sites using their own terminologies as an alternative to those employed by the RA/EEC teacher and the EEC principal when constructing the playspace. For example, the bamboo plantation became the bamboo forest, the bamboo sticks or the spy place, and the dirt pile was variously named by children as the dirt hill, the mining hill, the rock hill, the play mountain and the clay mountain. At times the naming explicitly described the physical features such as the bamboo forest or dirt hill, but some naming reflected the play experiences afforded by the site such as the mining hill and the spy place. We interpret this as a reflection of children's sustained playful engagement with the various sites over time as the physically-defined sites became meaningful play scenarios.

Children shared various reasons in support of their choices and by far the most common was 'enjoyment'. The social aspects were the second most cited reason with children often referring to being able to play and have 'fun' with friends. Other frequent reasons included a risk factor such as jumping from a high location or swinging 'really' high and their interactions with landscape elements such as running up hills or being able to sense and feel natural elements. The above data overview provides a context for the two vignettes below that narrate a story from site beginnings to child-negotiated transformative interactions and perceived affordances as weekly visits progressed.

Vignette 1: mining the hill

Quite heavy clay soil, removed from the muddy waterhole location, had been dumped in a heap to create a bare dirt pile or hill under the eucalypt trees. With time and trampling, it soon became firm such that digging required much effort. The dirt hill was designed for opportunities to climb on and slide off. During the first few visits, children's interactions with this site were limited to climbing on and jumping off the hill. Several groups of children would take turns occupying the hill and used it for varied activities, such as searching for rocks. Over time, the children discovered other ways of engaging with the dirt hill. This involved play scenarios where they would be helping the trees grow by creating rivers and waterways, mining for gold, searching for fossils or simply breaking up the clay "so I've just been breaking the clay, and then putting it in a pile there" (Gina Year 1/2, Walking Interview).

The dirt hill as a mining site was regularly visited by a group of three children looking for valuable items: "we tried to find some gold and fossils, but we still haven't found them yet, and now I'm just going to dig up the clay" (Casper Year 1/2, Walking Interview). Children had discussed in a walking interview the idea of using the mining site as a means to build a fortune and become rich! Noticeably, their skills in mining also developed over the visits and they used natural elements from other sites (rocks and sticks) as mining tools.

It also seemed that over repeated visits, the children began to develop plans for play to 'improve' the playspace to better

suit their play intentions, even when this involved a radical shift from envisaged uses by the EEC teacher. The dirt hill was not only described as a mining site, but it was also a place to dig for underground tunnels and caves:

> You could dig a bit, and then you could dig it all … a tunnel all the way to the um like a stream all the way to the other one, and have a bridge um across that, so you like you know how that one's there, you could have it across again, so you could walk across it rather than having to jump. (Alan, Year 1/2, Walking Interview)

Vignette 2: bridging the muddy waterhole and bamboo poles

A sawn tree log about three metres long and a quarter of a metre in diameter was securely straddled across the shallow muddy waterhole and the children also had ready access to strong and lightweight three metre bamboo poles, stripped of all side branches and leaves. Initially, the bamboo poles had been placed by an EEC teacher near a horizontal timber frame and the children used these and the frame for cubby building. As time went by, children's pole usage evolved and they began engaging in creative play, the bamboo poles became fishing rods at the muddy waterhole, "I like catching fish off the bridge" (Ben, Preschool, Walking Interview). The poles were also used in socio-dramatic play as weapons to defeat dragons and snakes in the bamboo plantation.

Children's ongoing engagement with the waterhole also seemed to be mediated by the changing weather conditions. As one child expressed "But after rain, it's really like deep down the end because last week it wasn't very deep down there, and now it's like it's deep as it was um in the middle down there now, almost … and I like that" (Aaron, Year 1/2, Walking Interview). The sensory aspects appealed too, "It's very nice, and I like making waterfalls, but when you get it in you and the wind's blowing it makes your hands very cold" (Rose Year 1/2, Walking Interview).

Over repeated visits to this particular site, the children also demonstrated physical skills. While using the bamboo poles for support to cross the muddy waterhole, EEC teachers observed the children's pole vaulting technique becoming more skillful as they experimented with where best to hold and place the pole to safely cross. Children also experimented with another crossing method which was to lay the poles across the puddle quite close together then walk across - an action that appeared to require well-developed balancing skills. Further bridge-making occurred with use of short logs, then large sheets of bark placed on top in layers with mud smoothed in between as an adhesive.

Emerging themes: creativity, sustained engagement and agency

The evolving names for spaces as attributed by children and the vignettes narrated above suggest that children's repeated visits and involvement with the nature playspace appeared to promote their creative and transformative participation. Over time, more opportunities/affordances to engage with these sites evolved as children directed and negotiated the play. While the children readily engaged with the nature playspace from day one as might be anticipated, we argue that the repeated visits enhanced their play scenarios and we identified three emerging themes: creativity, sustained engagement and agency.

Creativity Natural playspaces are well acknowledged as spaces that inspire many creative play affordances (Fjortoft and Sageie 2000; Knight 2013) and this playspace was no exception. Children began planning, developing and progressing their play scenarios with each repeated visit, perhaps just knowing that they would return meant they could explore and sustain various play scenarios. There was an evolutionary and transformative path for the children's play scenarios as illustrated in the vignettes above. There was not one creative play scenario at each site, but many over time, some more predictable e.g. cubby building, than others e.g. mining for gold. The physical topography changed over time with activity and also, weather provoked different affordances (Fjortoft and Sageie 2000). The children appeared to draw on previous actions such as tool-making for mining and pole balancing to extend affordance possibilities (Pedersen and Bang 2016) and thus, repeated visits enhanced the diversity of creative play.

Sustained engagement The manipulability of natural spaces and elements during child-directed play is commonly aligned with sustained engagement (Little et al. 2017) and the vignettes support this, in particular the dirt hill mining was continued by three children over 6 weeks. Children were also observed to return to sites to continue play after snack breaks and the primary school teachers particularly reflected on the prolonged concentration among children who typically demonstrated limited attention span in class. Sustained engagement also aligns with the slowing down of pace described by previous studies (Elliott and Chancellor 2014; Kelly and White 2013). Children had time to fully explore and extend play affordances through increasing familiarity and repeated visitation.

Agency Child-directed play in a nature playspace was novel in terms of the usual structured EEC programs and offered opportunities for agency and autonomy as advocated by contemporary images of children (Corsaro 2005). Children's agency

was evident on many levels from self-selection of play affordance sites and materials each week to how they engaged in self-managing risky play. In particular, the primary teachers described having only two EEC safety rules outdoors and much freedom as a new concept for the Year 1/2 children. Mackey (2017) advocates for children's agentic and meaningful participation across the cultural, democratic, social, natural and physical worlds they inhabit outdoors and repeated visits appeared to consolidate agency, particularly evident in the ongoing co-operative play scenarios where children mined the hill and built bridges.

While these emerging themes are perhaps not unexpected in natural outdoor play settings, we suggest the repeated visits as a new EEC program approach enhanced the affordances explored by children. Further, despite the limited study scale, the positive impacts have rippled out into the regional community with reported changes in local playspaces, teacher pedagogies and parental attitudes and the implementation of nature play professional learning.

Conclusion

In this study we pragmatically sought children's perceptions about play affordances in a newly created nature playspace as part of a repeated visit EEC program approach. Principally employing affordance theory (Gibson 1986) and a mosaic methodology (Clark and Moss 2001), we documented children's perceptions and reasoning about most and least popular play sites through walking interviews and focus groups. We also witnessed in the vignettes playful transformations and enhanced affordances as children actively negotiated play scenarios with the physical landscape, natural materials and peers on each successive visit within a topological and temporal frame. Themes of children's creativity, sustained engagement and agency came to the fore and significantly, after the research study, interest in children's nature play and playspaces was stimulated in the broader regional community. Although a small-scale localised study, the inclusion of nature playspaces and repeated visits to natural playspaces offers a provocation for professionals creating early years EEC programs. Teachers' responses to their involvement in this study will be reported later; but, we currently identify that the broader community impacts of this nature playspace and program inspire further research.

References

Australian Curriculum and Reporting Authority (ACARA). (2011). *Australian curriculum V1.2*. Retrieved from http://www.acara.edu.au/curriculum

Barratt Hacking, E., Cutter-McKenzie, A., & Barratt, R., (2013). Children as active researchers: The potential of environmental education research involving children. In J. Dillon, A. E. J. Wals, , M. Brody, & R. B. Stevenson, (Eds.) International handbook of research on environmental education (pp. 438–458). Abingdon: Routledge.

Christiansen, A., Hannan, S., Anderson, K., Coxon, L., & Fargher, D. (2018). Place-based nature kindergarten in Victoria, Australia: no tools, no toys, no art supplies. *Journal of Outdoor and Environmental Education*. https://doi.org/10.1007/s42322-017-0001-6.

Clark, A. (2005). Ways of seeing: using the Mosaic approach to listen to young children's perspectives. In A. Clark, A. T. Kjørholt, & P. Moss (Eds.), *Beyond listening: Children's perspectives on early childhood services* (pp. 29–49). Bristol: Policy Press.

Clark, A., & Moss, P. (2001). *Listening to young children: The Mosaic approach*. London: National Children's Bureau for the Joseph Rowntree Foundation.

Corsaro, W. A. (2005). *The sociology of childhood* (2nd ed.). Thousand Oaks: Sage.

Elliott, S., & Chancellor, B. (2014). From forest preschool to bush kinder: an inspirational approach to preschool provision in Australia. *Australasian Journal of Early Childhood, 39*(4), 45–53.

Fjortoft, I., & Sageie, J. (2000). The natural environment as a playground for children- landscape description and analyses of a natural playscape. *Landscape and Urban Planning, 48*, 83–97.

Gambino, A., Davis, J., & Rowntree, N. E. (2009). Young children learning for the environment: researching a forest adventure. *Australian Journal of Environmental Education, 25*, 83–94.

Gibson, J. (1986). *The ecological approach to visual perception*. Hillsdale: Lawrence Erlbaum.

Gill, T. (2011). *Children and nature: A quasi-systematic review of the empirical evidence*. London: London Sustainable Development Commission, Greater London Authority Retrieved from http://www.londonsdc.org/lsdc/research.aspx.

Greenfield, C. (2011). Personal reflection on research process and tools: effectiveness, highlights and challenges using the mosaic approach. *Australasian Journal of Early Childhood, 36*(3), 109–116.

Guba, E. G., & Lincoln, Y. S. (2005). Paradigmatic controversies, contradictions and emerging confluences. In N. K. Denzin & Y. S. Lincoln (Eds.), *Handbook of qualitative research* (3rd ed., pp. 191–216). Thousand Oaks: Sage Publications.

Kelly, J., & White, E. J. (2013). *The Ngahere project: Teaching and learning possibilities in nature settings*. Wilf Malcolm Institute of Educational Research, University of Waikato, NZ. Retrieved from http://www.waikato.ac.nz/__data/assets/pdf_file/0007/146176/Ngahere-project_32013-03-14.pdf.

Knight, S. (Ed.). (2013). *Forest schools and outdoor learning in the early years* (2nd ed.). London: Sage Publications.

Leather, M. (2017). A critique of forest school: something lost in translation. *Journal of Outdoor and Environmental Education, 17*, 176–177.

Little, H., Elliott, S., & Wyver, S. (Eds.). (2017). *Outdoor learning environments: Spaces for exploration, discovery and risk taking in the early years*. Sydney: Allen & Unwin.

Louv, R. (2008). *Last child in the woods*. Chapel Hill: Algonquin Books of Chapel Hill.

Mackey, G. (2017). Strengthening children's agency. In H. Little, S. Elliott, & S. Wyver (Eds.), *Outdoor learning environments: Spaces for exploration, discovery and risk taking in the early years* (pp. 145–163). Allen & Unwin: Sydney.

Malone, K., & Waite, S. (2016). *Student outcomes and natural schooling*. Plymouth: Plymouth University Retrieved from http://www.plymouth.ac.uk/research/oelres-net.

Nxumalo, F. (2018). Stories for living on a damaged planet: environmental education in the preschool classroom. *Journal of Early Childhood Research, 16*(2), 148–159.

Payne, P., & Wattchow, B. (2008). Slow pedagogy and placing education in post traditional outdoor education. *Australian Journal of Outdoor Education, 12*(1), 25–38.

Pedersen, S., & Bang, J. (2016). Historicizing affordance theory: a rendezvous between ecological psychology and cultural-historical activity theory. *Theory & Psychology, 26*(6), 713–750.

Rooney, T. (2016). Weather worlding: learning with the elements in early childhood. *Environmental Education Research*. https://doi.org/10.1080/13504622.2016.1217398.

Taylor, A. (2013). *Reconfiguring the natures of childhood*. London: Routledge.

UNICEF. (1989). *United nations convention on the rights of the child*. Retrieved from https://www.unicef.org/magic/media/crc_word_format_english.doc. Accessed 13 Aug 2018.