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THE IAN POTTER CHILDREN'S

# WILD PLAY GARDEN



# WILDING NATURE PLAY FOR CHILDREN AND FAMILIES

An evaluation of The Ian Potter Children's  
WILD PLAY Garden at Centennial Park, Sydney

**CENTENNIAL  
PARKLANDS  
FOUNDATION**  
*people and parks together*



## ACKNOWLEDGEMENTS

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# EXECUTIVE SUMMARY

This report presents the findings of an evaluation study initiated by Centennial Parklands to assess impacts from The Ian Potter Children's WILD PLAY Garden for children and families. A team of researchers from the Centre for Educational Research, Western Sydney University (WSU), was commissioned to gather and assess the evidence in relation to the Garden's stated aims.

This evaluation study focused on the use and benefits of The Ian Potter Children's WILD PLAY Garden for multiple stakeholders, including children, parents and educators. A mixed method approach was used, incorporating surveys of adults and children, targeted observations, photo-voice activities and focus groups with Centennial Parklands staff and Bush School parents.

Key findings included:

The Garden draws families and children from a broad geographical area with 17% of the adult survey sample coming from a range of cultural backgrounds. Both the innovative playground and the kinds of play it enables are major drawcards.

The main reasons given by adults for bringing children to the Garden were to play outdoors, for physical activity and connection to the natural world. Highlights for children were the waterplay, the giant slide and the treehouse/bamboo forest. Both adults and children appreciated the opportunities to explore, experience and discover the range of nature-based spaces and activities.

Children's exploration of the Garden was associated with learning to overcome challenges through physically extending themselves, and finding new places where they could observe and enjoy an immersive nature experience. Nature play in the Garden thus generated enthusiasm and creativity, combining physical activity with freedom and fun.

Parents identified benefits for children's connection to nature, as well as their physical activity and skill development. They noticed children enjoying the freedom to explore and to take risks in a safe environment. They remarked on the creativity and imagination it brought out, as well as social development through cooperative play that the children instigated themselves.

The Garden afforded a wide range of movement potential to support children's physical development, regardless of their physical abilities. For a group of children with special needs the Garden provided a quality of sensory and physical stimulation that enhanced their physical skills, their enjoyment, and their sense of confidence.

Children who had visited the Garden indicated that they had very positive attitudes towards playing outside in nature. This was associated with a sense of freedom and competence. Only about half the parents indicated that they observed any differences in their children's overall nature responsiveness as a result of visiting the Garden. Those that noticed changes strongly endorsed the beneficial effects of nature play on children's holistic development. These effects were even more pronounced for Bush School parents who attended a weekly facilitated education session with their children in an area adjacent to the Garden.

The Ian Potter Children's WILD PLAY Garden has made the benefits of nature play available to children and families in an urban environment in a unique and innovative way. Based on a range of evidence from 200 parents and children and analysis of social media responses, it is apparent that the enthusiasm generated in relation to the Garden has been matched in the main by the benefits it affords.

That developmental benefits could be identified so readily, sometimes from only a single visit, speaks to the remarkable quality of the environment that has been created. Some challenges remain in relation to providing more shade and amenity – a number of these kinds of issues have been identified as a result of the popularity of the site. Several specific recommendations are provided in the final section to help address these considerations.

The evaluation also highlighted the challenge of providing an environment in which children are exposed to risk in order to learn, while needing at the same time to create a sense of safety. Parents appeared to have greater difficulty managing the tension between these two dimensions than did children. Enabling parents through education to understand the principles of nature play and how they can support it is therefore a key recommendation to emerge from the evaluation.

Finally, the outstanding success of The Ian Potter Children's WILD PLAY Garden is evident in the extent of interest it has generated from many quarters as an exemplar for a new kind of nature space that makes the experience of nature play accessible even to those living in highly urban environments.

## CONTEXT

Due to urbanisation and increasing reliance on technology-based activities children's engagement in active physical play is declining, particularly in contemporary Western contexts (Lester & Russell, 2010; Witten, Kearns, Carroll, Asiasiga, & Tava'e 2013). The global trend of decreasing rates of physical activity and increasing sedentary behaviour amongst children has become a public health priority. In parallel with the health impacts of reduced physical activity, concerns have been raised by environmentalists and environmental educators about the negative effects of disconnection from nature that arises from impoverished engagement with local outdoor environments (Louv, 2010; Soga & Gaston, 2016). There is consequently a need to consider a range of strategies to address both the decline in children's physical activity and growing environmental disengagement.

The Ian Potter Children's WILD PLAY Garden was established at Centennial Park to 'create a safe, unique space in the Park for children to explore, learn and connect with the natural environment'. It seeks to 'provide an outdoor learning experience for children aged 2-12, of all abilities and backgrounds', and to enable a 'whole-of-life' approach to education (Centennial Parklands, n.d.). It was developed with funding provided by numerous philanthropic and private donations, including major sponsorship provided by the Ian Potter Foundation. Following a comprehensive planning process involving expert advice and broad public consultation the Garden was constructed and opened to the public in September 2017. Since opening it has received in excess of 320,000 visitors.

This evaluation study investigates the extent to which the Garden has so far been successful in its mission to provide inclusive and engaging opportunities for children and families to participate in nature-based 'wild play'. It considers the ways that children of differing backgrounds and abilities engage with the Garden and the effects that they and their parents and teachers report. It elucidates the ways that children, parents and educators make meaning of their experiences of the Garden, taking into account their views on its benefits for physical, social and learning development, as well as for wellbeing, nature connectedness and environmental awareness.

The Ian Potter Children's WILD PLAY Garden seeks to:

- create 'nature smart' kids by engaging children with the environment through 'wild play' experiences,
- build and strengthen an 'outdoor, nature focused' community for Sydney by providing a gathering space for families and friends of all physical abilities, all cultural and linguistic backgrounds, and to
- enable 'nature-based' play by providing a unique opportunity for children across NSW and beyond to actively participate in freely 'wild play' and participate in formal environmental education programs in an outdoor setting.

Additionally, through establishing the Garden and providing children with opportunities for nature play, Centennial Parklands has sought to improve children's well-being, problem solving skills, imagination, self-motivation and learning capacity.



## RESEARCH DESIGN

This evaluation study was designed to evaluate the extent to which The Ian Potter Children's WILD PLAY Garden is meeting its stated aims. These comprise:

- Providing an inclusive outdoor learning environment for all children including culturally and linguistically diverse (CALD) and disadvantaged children, enabling a 'whole-of-life approach' to education.
- Breaking down barriers to nature play, enhancing the chance of each and every child fulfilling his or her own educational potential.
- Making a positive contribution to improving child health and wellbeing and skills development
- Making a positive contribution to overcoming 'nature deprivation' by re-engaging children, through play-based experiences to create increased environmental awareness, empathy and action.
- Build and strengthen community provision of a community gathering space where families, friends and people of all physical abilities and from all cultural and linguistic backgrounds can meet, relax and enjoy being immersed in an inclusive and safe natural environment.

These aims were operationalised for the evaluation as a series of five key research foci. The research evaluation sought to:

1. Investigate the ways that children and families from a range of cultural backgrounds engage with the Garden and the benefits they derive from it;
2. Identify the ways specific features of the Garden site encourage nature play and consider any associated developmental and/or learning outcomes;
3. Examine the involvement of children from special needs and disadvantaged backgrounds with the Garden and elucidate any particular challenges and benefits for these groups;
4. Explore whether and how nature play at the Garden may be associated with increased environmental appreciation, awareness and/or action;
5. Investigate whether and how the Garden provides an inclusive community gathering space.

The evaluation study focused on the use and benefits of the Garden for multiple stakeholders, including children, parents, educators and family groups. It was designed to elucidate their perspectives using self-report relating to perceived benefits associated with the Garden, as well as observations collected directly by the researchers and/or reported by parents and educators.

# METHOD

To capture the range of data required for this evaluation the research combined a number of methods including surveys, targeted observations, photo-voice, focus groups, and semi-structured interviews.

**Surveys** enabled data to be collected across a broad sample and provided information on usage, engagement, and responses to the spaces and activities available in the Garden. Separate online surveys were set up for children in the 3-12 age range and for adults aged 18 and over. The adult survey included both general and targeted questions for parents/carers and for teachers, early childhood educators, and child care workers who may have brought groups of children to visit the Garden. The children's survey also included ten relevant items (out of twelve) from the Attitudes toward Outdoor Play (ATOP) scale (Beyer et al., 2015).

**Targeted observations** were conducted with two different groups of primary school-aged children who visited the Garden during the period of the study. These targeted observations helped to identify the types of movement skills and opportunities afforded by the Garden outdoor space and structures, including built features and the natural environment and materials. The observations enabled researchers to identify the kinds of outdoor literacy and fundamental movement skills children were engaging in as they navigated the Garden, and focused on identifying active play, outdoor literacy, connection with nature, and fundamental movement skills.

**Photo-Voice** was chosen to bring out children's own experiences and stories about the Garden and to enable the researchers to gain an appreciation of the site through children's eyes. It is an elicitation technique that places the participants at the centre of the process of data collection. Participating children were asked to take photographs of the places that held particular meaning or significance for them, then were invited to show the photos, and tell the researchers about what they photographed and why.

**Focus groups** were undertaken with Centennial Parklands staff and with groups of parents/carers who were participating in nature-based play activities. Separate focus groups with these two groups enabled the researchers to tease out their unique perspectives.

**Semi-structured Interviews** were conducted with teachers and carers during scheduled visits to the Garden. The interviews aimed to elucidate their views regarding children's nature play and particularly focused on their experiences and observations of the children's responses to the Garden.

The research design, including procedures for participant recruitment and gathering, storage and analysis of data, underwent thorough review by the WSU Human Ethics Committee. Ethics approval was formally granted on 22nd August 2018.



## RECRUITMENT AND PARTICIPATION

Centennial Parklands' Education team collaborated in the design of the project, contributed logistical advice about the Garden, provided funding for incentives offered to survey participants (coffee or ice cream for adults and children respectively), facilitated contact with potential schools and Out of School Hours (OOSH) Centres and Bush School parents, collected and analysed social media data, and liaised with media relations to promote the Wilding Play project. Data was gathered between October 2018 and February 2019.

Surveys were conducted online using Qualtrics survey software, with information, consent and survey access made available through a series of dedicated webpages set up on Western Sydney University's website and linked to the Centre for Educational Research. The survey was publicised and linked through the Centennial Parklands website and relevant social media. Flyers were displayed at the Garden and other locations within Centennial Park and in January 2019 Centennial Parklands volunteers assisted by distributing flyers on two occasions. These strategies were supplemented in early 2019 with a local newspaper article featuring the Centennial Parklands Coordinator of Education Services and the Garden, and a promotional video featuring the Garden and the research team prepared by the WSU media department.

Centennial Parklands staff members and volunteers working in education, horticulture, garden design, maintenance, and/or with Centennial Parklands Foundation who had been involved in some way with the Garden attended a focus group on 16th October 2018. This 75-minute focus group involved 15 participants.

Parents/carers who were participating in Centennial Parklands' Bush School program at a site adjacent to the Garden were also invited to attend a parent focus group session after one of their Bush School sessions in December. Six parents and one carer took up the invitation and participated in discussion on their perceptions of nature play and the Garden.

In late 2018 a teacher from a local special primary school expressed interest in having her class participate in the research. They had been regularly visiting the Garden and were eligible to participate with parental permission, which was sought and obtained according to the required ethics protocol. Six students participated in targeted observations on two separate occasions. Due to both physical and communicative limitations only one of these students participated in the photo-voice activity. Extended observations were instead undertaken, with further insights also provided through open-ended interviews with teachers.

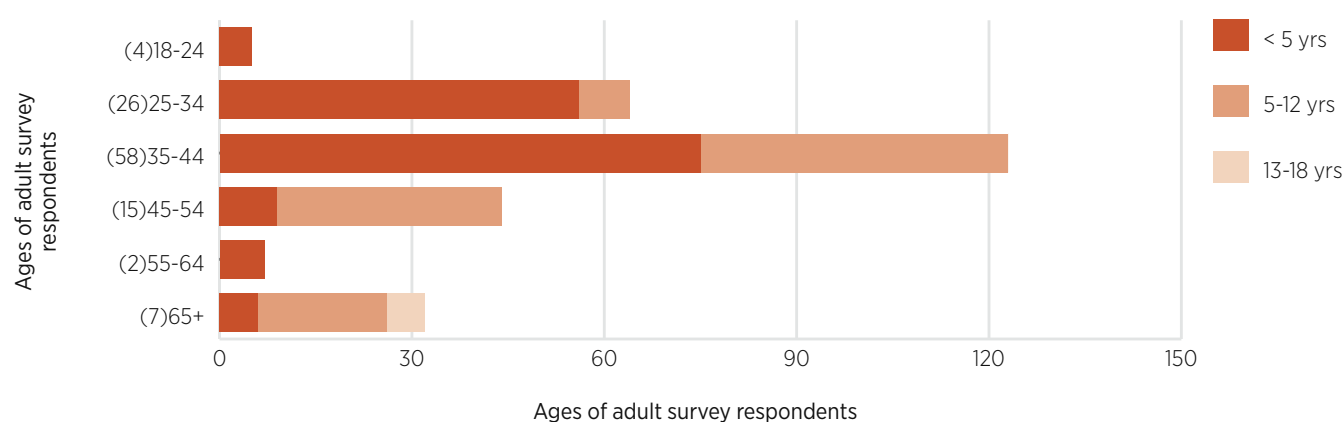
One OOSH centre agreed to participate in the study during their visit to the Garden towards the end of the school holidays in January 2019. Although groups from this centre had previously participated in visits to Centennial Park this was their first excursion to the Garden. Over 30 students from the centre attended on the day. Observations and photo-voice were undertaken with 15 who volunteered to participate and had parental consent. Table 1 summarises participation and numbers for each method of data collection.

**TABLE 1:** Methods of data collection with participant sources and numbers

METHOD	PARTICIPANTS	NUMBER
Online surveys	Adults	112
	Children (23 male; 19 female)	42
Observations	Special Needs School	6
	Out Of School Hours (OOSH) Centre	15
Photo-voice	1 child from special needs school; 15 from OOSH	(16)
Focus groups	Centennial Parklands education staff	15
	Bush School parents/carers	7
Interviews	Education/child care staff	3
TOTAL		200

Of the 112 adult survey respondents 104 were parents or carers of children. Four were grandparents, two were friends of parents, one identified as an early childhood worker, and one as a landscape architect. The largest number of adult survey respondents (58 or 52%) was in the age range of 35-44, while there were 26 (23%) respondents in the next most common age

range of 25-44. The numbers in brackets in front of the adult age ranges in Figure 1 indicates the number of adults in that category. Figure 1 shows the numbers of children accompanied to the Garden by adults in each age range.

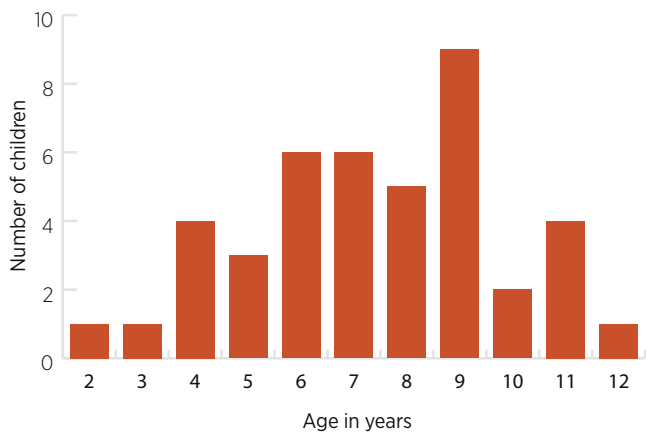


**FIGURE 1:** Number of children accompanied to The Ian Potter Children's WILD PLAY Garden by adult survey respondents in different age groups

Over half the children these adults had brought to the Garden were under five years (158 or 57%). All but six of the remaining children identified in the adult survey were in the 5-12 age bracket (111 or 40%). Only six 13-18 year olds were identified by the adult survey respondents as having accompanied them to The Ian Potter Children's WILD PLAY Garden.



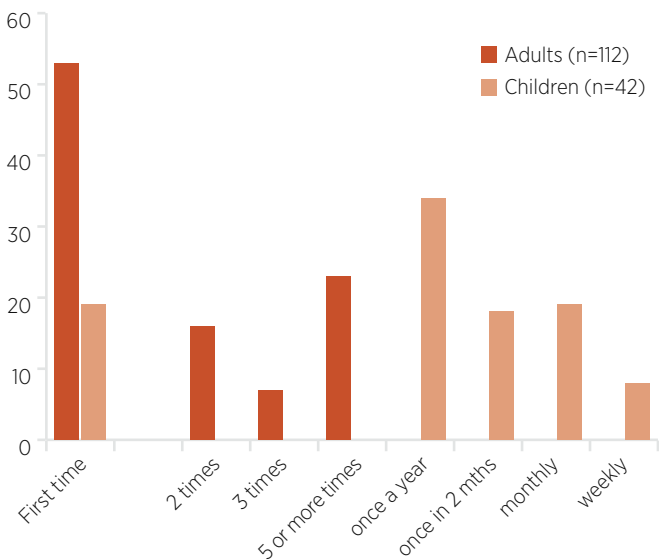
The age range of respondents to the children’s survey extended from 2 to 12 years, with the majority in the 5-12 year age bracket (35/42 or 83%). Figure 2 shows the distribution of ages across the child survey sample.



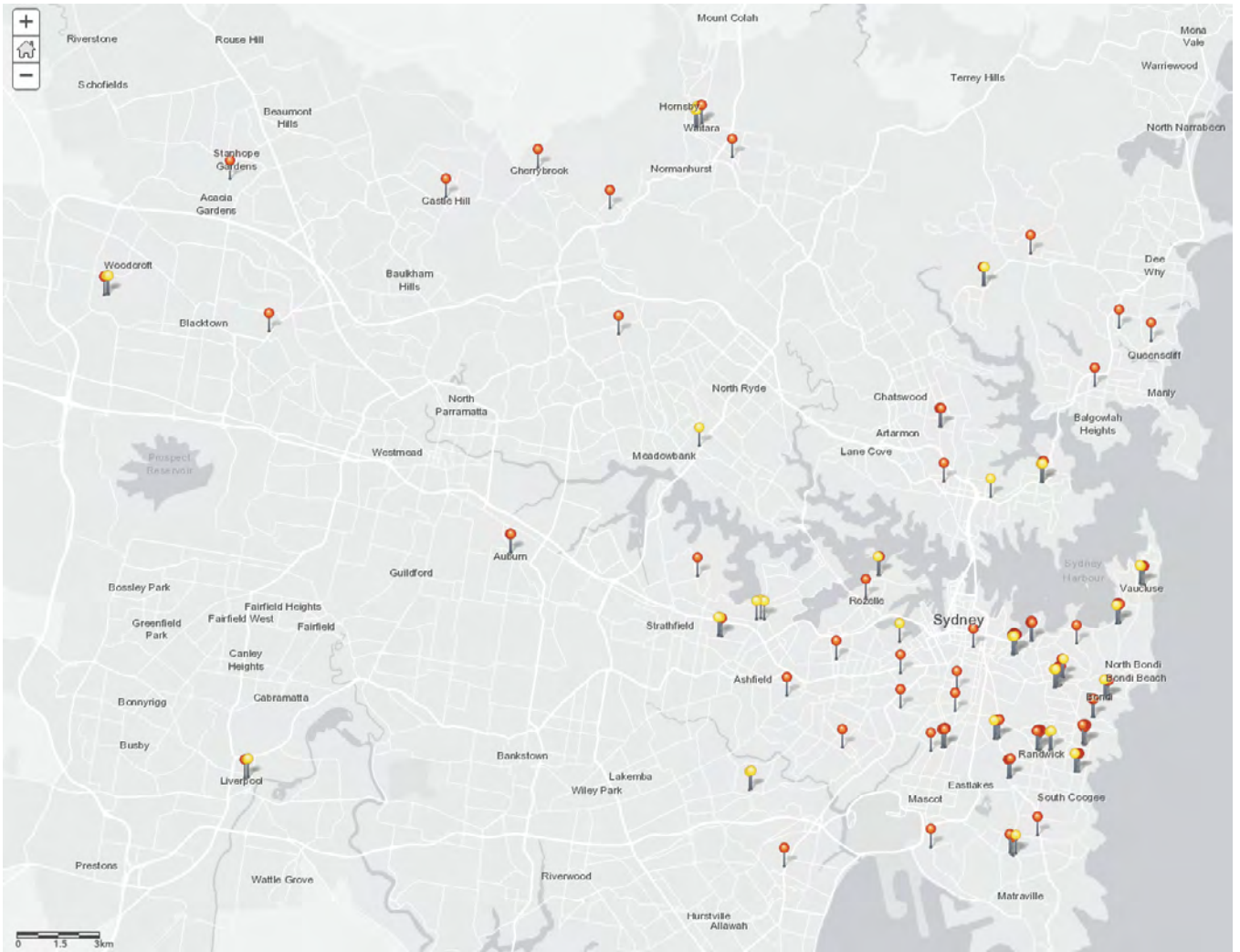
**FIGURE 2:** Age distribution of child survey respondents (N= 42)

Figure 3 shows survey responses in percentages of both children and adults regarding the frequency of their visits to the Garden. Children were asked to nominate whether this was their first or up to their fifth visit. Adults were asked whether they had visited the Garden previously and how often they brought their children there.

Based on postcode the locations of survey participants were tallied and mapped. Figure 4 and Table 2 show the geographic distribution of the survey respondents.



**FIGURE 3:** Frequency of visits to the Garden for both child and adult survey respondents



**FIGURE 4:** Geographic distribution of Sydney-based survey respondents

📌 Adult 📌 Child



**TABLE 2:** Locations by postcode of adult and child survey respondents

SUBURB	PCODE	A	C	SUBURB	PCODE	A	C	SUBURB	PCODE	A	C
Alexandria	2015	1		Earlwood	2206		2	Neutral Bay	2089		1
<i>Appin</i>	2560	1		Edgecliff	2027	3		North Manly	2100	1	
Auburn	2144	2		Epping	2121	1		Paddington	2021	8	2
Balgowlah	2093	1		Erskineville	2043	1		Pennant Hills	2120	1	
Balmain	2041	1	1	<i>Fitzroy VIC</i>	3065	1		Redfern	2016	1	
<i>Bargo</i>	2574	1		Five Dock	2046		3	Rockdale	2216	1	
<i>Bellambi</i>	2518	1	1	Forestville	2087	1	1	Rose Bay	2029	4	1
Bellevue Hill	2023	1		Frenchs Forest	2086	1		Rosebery	2018	4	
Bondi	2026	4	1	Freshwater	2096	1		Rozelle	2039	1	
Bondi Junction	2022	4	2	Glebe	2037	1		Ryde	2112		1
Botany	2019	1		<i>Golden Bay WA</i>	6174	1		Seven Hills	2147	1	
Bronte	2024	2		<i>Gosford</i>	2250	2		Stanhope Gardens	2768	1	
<i>Camden</i>	2570	1		Hillsdale	2036	5	1	<i>Stanwell Park</i>	2508	1	
Camperdown	2050	1		<i>Katoomba</i>	2780	1	1	Summer Hill	2130	1	
Castle Hill	2154	1		Kensington	2033	3	1	Surry Hills	2010	1	
Cherrybrook	2126	1		<i>Kiama</i>	2533	1		<i>Sylvania</i>	2224		1
Clovelly/Randwick	2031	11	2	Kingsford	2032	3		Vaucluse	2030	2	2
Concord	2137	1		<i>Kirrawee</i>	2232	1		Wahroonga	2076	1	
Coogee	2034	3	1	Leichhardt	2040	1		Waitara	2077	2	5
Crows Nest	2065	1		Liverpool	2170	1	2	Waterloo	2017	1	
Croydon	2132	1	2	Maroubra	2035	2		Willoughby	2068	2	
Darlington	2008	1		Marrickville	2204	1		Woollahra	2025	1	1
Doonside	2767	1	2	Mosman	2088	2	3	<b>TOTAL</b>		<b>112</b>	<b>42</b>

Note: Several places located beyond the boundaries of the Figure 2 map are italicised in the table.

## DATA ANALYSIS

This project gathered a range of self-report data (survey, focus groups, photo-voice responses) as well as objective data (observations, photos) to furnish a comprehensive multi-perspectival analysis of the ways that children and families use The Ian Potter Children's WILD PLAY Garden and to assess how it may contribute to children's learning and development. These diverse forms of data provided for multiple comparisons, enabling assumptions to be tested and nuances to be elucidated in order to distil a comprehensive analysis of aims and impacts.

The surveys included both pre-coded and open-ended questions. Pre-coded data (derived from demographic questions and rating scales) were examined using descriptive statistics and graphic visualisation. Open-ended responses were coded and analysed to identify key themes related to usage and perceived benefits of the Garden. Thematic identification and analysis interrogated the data in relation to the key aims of the evaluation.

Emergent coding techniques were undertaken manually, or with the assistance of NVivo software, and were reviewed and checked for fit. Final categories for presentation of the data were determined on the basis of saturation. NVivo was also employed to generate WordCloud analyses in two instances where this approach was deemed suitable.

Observational data regarding the children's engagement and

physical skills was considered in relation to developmental indicators aligned with the PDHPE curriculum and with emerging frameworks for assessing skills for nature-based learning.

Content analysis was applied to children's photo-voice responses to reveal i) how children involved themselves with different aspects of the site, both physically and imaginatively, and ii) any ecological themes or perspectives that emerged spontaneously from children's narratives.

NVivo was employed to code data derived from focus groups with parents/carers and with Centennial Parklands staff. Use of this software helped to enable systematic thematic analysis. Themes derived from the analysis were then compared with the broader data set to assess alignment and divergence with the range of findings from this study and with the literature.

The breadth of data collection and analysis provides a rich picture of usage of the Garden from multiple perspectives, thus fulfilling the purposes of the evaluation. Further detailed theoretical analysis was undertaken with regard for recent research literature on children and nature connectedness, which highlights key dimensions of being in nature, being with nature and being for nature, each of which is associated with a number of specific characteristics (Giusti et al., 2018).











# FINDINGS

Findings relating to each of the five key research foci will be examined in turn. First, an overview of salient perspectives drawn from the Centennial Parklands staff focus group will be presented. These findings yield important contextual foundations for the analysis to follow.

## PURPOSE AND ESTABLISHMENT OF THE IAN POTTER CHILDREN'S WILD PLAY GARDEN

The initial concept for the Garden was purposefully aligned with the philosophy and methods of nature play that underpin Centennial Parklands' suite of education programs. Nature play is not simply about spending time outdoors. It is about allowing children the opportunity to get to know and experience nature through exploration. It intends to cultivate a sense of curiosity and freedom in nature, to build physical skills and develop psychological confidence through facing risks and overcoming challenges. As children grow comfortable in nature they enhance their sense of connection to place and experience wellbeing benefits (Gill, 2014).

The successful Bush School program involves weekly nature play sessions facilitated by Centennial Parklands educators. Its pedagogical model was adapted from that of the international Forest School movement to develop an approach to nature play specifically for Australia. Bush School and related programs at Centennial Park have evolved to engage children and their families, as well as schools and child care centres, in nature play.

On the basis of this work the Education Centre also began providing professional development for educators throughout the state. As the impact of the nature play programs became clearer, there was a desire by the education team and the executive to widen the scope for more people to be able to independently access nature play experiences, in the form of a wild play discovery garden.

In instigating the Garden Centennial Parklands undertook wide consultation with community bodies generating great enthusiasm and support for the project. Play features were selected from design consultation workshops with local primary schools, where children communicated that water play and a slide were the top priorities for them when it comes to outside play.

A professional landscape design company undertook to turn the vision of the stakeholders into reality. Their brief included the intention to reflect the ecology of the Parklands. On this basis the water play was designed to reflect the artesian springs in Lachlan Swamp; the turtle mounds to reflect the diversity of species of turtles; the balancing eel to reflect the existence of the long finned eels in the Parklands' ponds; and the Banksia tunnels reflecting the pre-colonial landscape of the area which is Eastern Suburbs Banksia Scrub. Figure 5 provides a map of the final garden design.

Produced as a visitor's map by Centennial Parklands, the interpretive map shown in Figure 5 highlights the layout of the Garden including the key play areas and features. The giant slide is not identified in the legend, but is connected to the treehouse.

Education staff identified their focus on nature play with providing freedom to explore and engage in the setting. The intended long-term benefits were framed in terms of resilience.

**I think we're building resilience for children and students in the future. I mean that's the main, underpinning thing. Kids need to learn to get down and dirty and not be restricted.**

The educators commented on their observations of children gaining an increased sense of confidence and agency in their play and parents beginning to trust their children to be able to play constructively and safely. Children learned to assess and negotiate risks in their play and adults became more attuned to real versus potential risks and their children's capacity to negotiate them. The Garden was seen as a stepping stone to further possibilities for engaging with nature beyond the confines of the Garden.



**FIGURE 5:** Interpretive map of The Ian Potter Children's WILD PLAY Garden



[The Garden is] a nice intermediary for them because in a lot of ways it looks like a playground. It's got those elements of the slide and tunnels and things to climb on. But it's also more manicured and it's got a fence around it so, in a lot of ways the parents feel more comfortable because it has elements that they're familiar with...Potentially, the parents see that they can climb on the log because they've seen their kids climb on the eel with its little steps. And then they just take it one step further... it kind of gives them a stepping stone to take kids on further adventures.

Even with the contained setting of the Garden some parents were uncomfortable with the emphasis on unstructured free play. The education staff stressed the need for adults to learn about the approach and underlying philosophy of nature play.

The horticulture and education teams noted the implications of the Garden in relation to increasing interest worldwide on urban greening and nature connection. They note this relatively small 1.5 hectare space within a major urban area offers a variety of environments and plants to explore and real opportunities for connection with nature

... it has over 12,000 plants so also creating all those micro climates and pockets and creating worlds within Sydney that you probably wouldn't be able to see outside of your apartment usually...and the kids that are visiting when the Garden first opened compared to when they're visiting a year later. They can see a change in the environment, the ecology.

The concept for the Garden represented a significant innovation in Centennial Parklands' ways of engaging with the public. This required that the horticultural team take a new approach to choosing plants and designing spaces intended to be used for children in free play. Beyond the more usual emphasis on how plants looked, the horticulturalists needed to pay greater attention to potential risks, such as poisonous or spikey plants. Plants that could withstand and encourage ongoing, consistent interaction by the children were required.

It's got to be well presented but it's often about how it's used, and the kids are using it to interact with and play with.



**FIGURE 6:** Sign at front gate of The Ian Potter Children's WILD PLAY Garden

Horticulture staff stressed their own learning from working with plants in this way, noting that the function of the plants changed from being a visual decoration to a participant in the children's nature play.

**They're changing state from just existing to having a function with a touch and feel and texture and all those elements are brought into it**

The horticulturists reported that they eventually got used to the children creating their own pathways in the Garden and stopped fighting it. One of the biggest changes for the horticulture team was the ongoing maintenance and upkeep required to keep the Garden safe and looking good. The team is in the Garden every morning for 3.5 hours and the Garden is closed for more lengthy maintenance projects during August. There is considerable cost associated with this effort.

In the following pages the benefits of this effort for the children and families who visit the Garden are addressed for each of the five research foci outlined previously.

RESEARCH FOCUS 1:

How do children and families from a range of cultural backgrounds engage with The Ian Potter Children’s WILD PLAY Garden? What kinds of benefits do they derive from it?

Located centrally within Sydney’s eastern suburbs, Centennial Parklands provide a long established public nature space of significant historical, ecological, recreational and cultural significance. Positioned at the juncture of four different Local Government Areas (LGAs), the Parklands, and thus the Garden, seek to cater to the breadth of cultural, social and economic diversity represented in their surrounding areas, while also engaging with the many regional, interstate and international visitors attracted there. Inclusivity and engagement of culturally diverse communities is consequently an important aim for the Garden.

In order to gather data regarding the Garden’s appeal to children and families from culturally diverse backgrounds, the adult survey included a question asking respondents to indicate the language they spoke at home and to separately indicate the home languages of any children they had brought to the Garden. The languages other than English that were spoken at home by survey respondents are shown in Figure 7. Indicated frequencies refer to the number of individual survey respondents who nominated each language.

In total 19 of 110 adults (17%) who answered this survey question indicated that they spoke a language other than English at home. This rate appears comparable with 15% of Woollahra residents (<https://profile.id.com.au/woollahra/language>) and 21% of Waverley residents (<https://profile.id.com.au/waverley/language>). However, it is substantially lower than the 32% of Randwick residents (<https://profile.id.com.au/randwick/language>), and 36% of Sydney residents (<https://profile.id.com.au/sydney/language>) who speak non-English languages at home. Given that the survey was online and in English only, the 17% figure may be an underestimate of the actual proportion of people from culturally diverse backgrounds who have visited the Garden.

An examination of the surveys returned by these 19 individuals revealed response patterns that were not substantively different from the remainder of the surveys. Consequently all survey responses were included together in subsequent analyses.

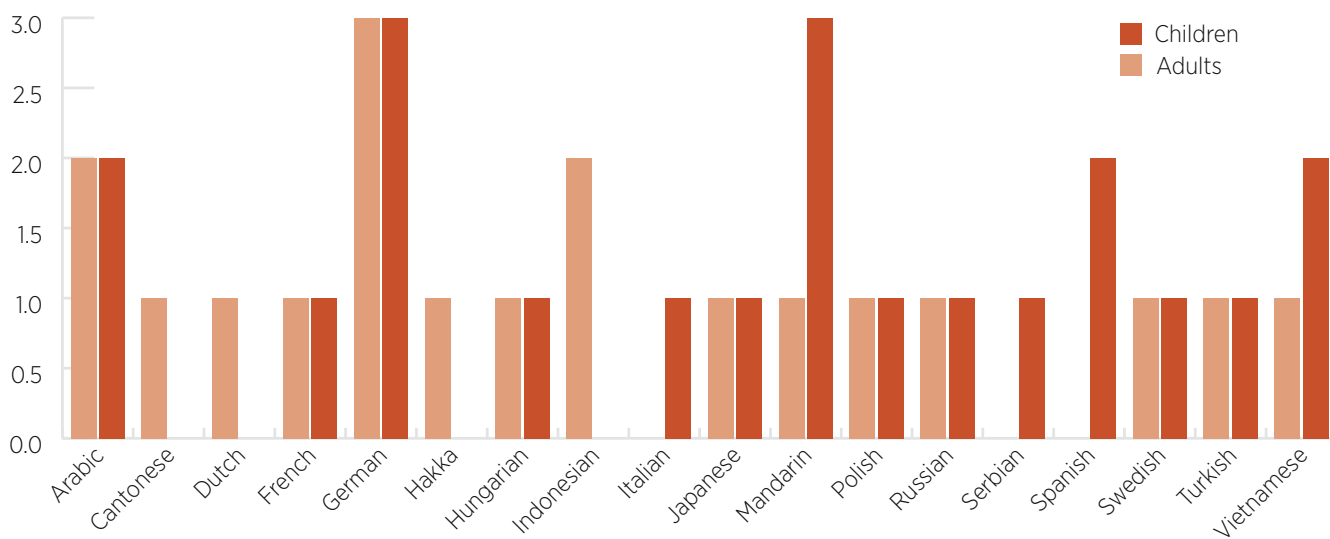
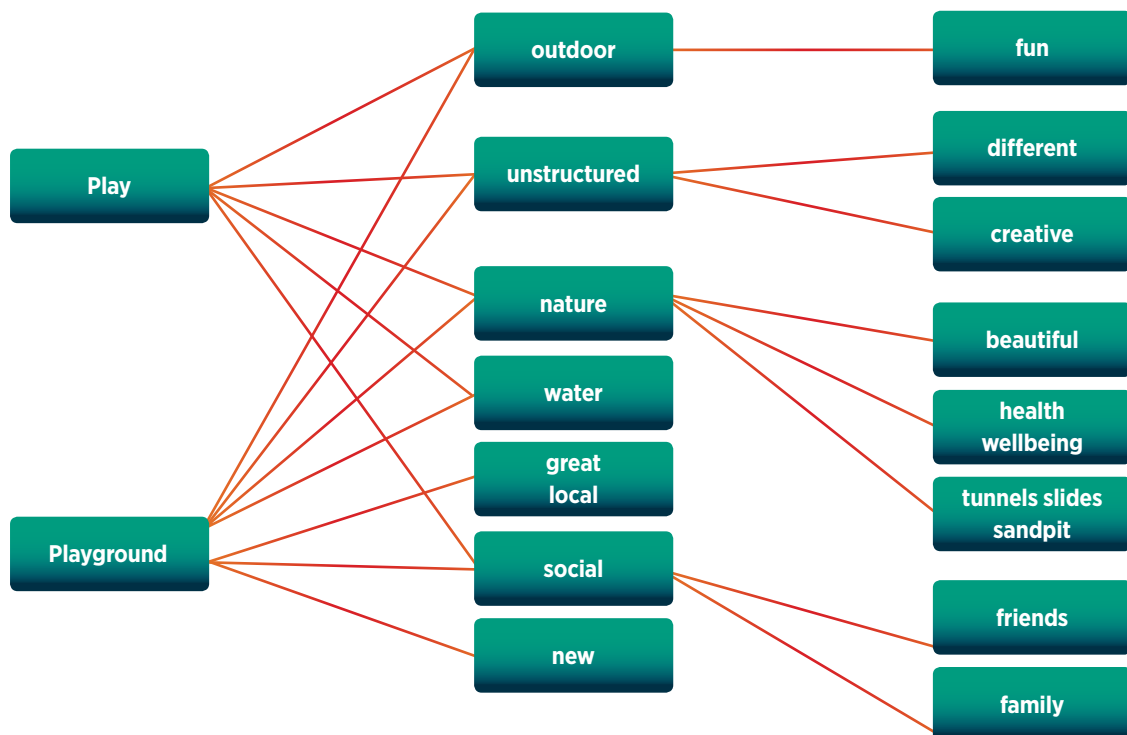


FIGURE 7: Languages spoken at home by adults and children

### Reasons for visiting The Ian Potter Children's WILD PLAY Garden

Asked to nominate the main reason for visiting the Garden the majority of adult survey respondents explicitly nominated play as their primary reason. Many went on to elaborate the kinds of play or features of the playground that they found most engaging.

Figure 8 provides a schematic overview of responses to this question. While play was the overarching reason given, the kind of play available in the Garden was highly valued. Both the unstructured, outdoor context of nature play and the social dimensions and activities available in the Garden contributed to this assessment. Positive impacts associated with these features related to enjoyment, creativity, health-enhancement and social connections.



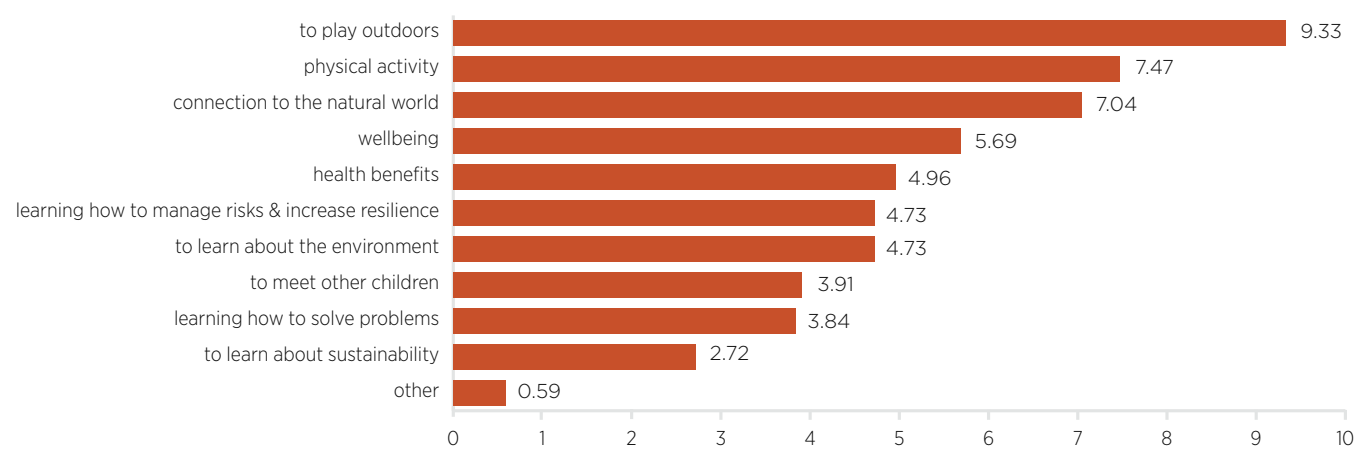
**FIGURE 8:** Adult survey participants' reasons for visiting The Ian Potter Children's WILD PLAY Garden



The adult survey asked respondents to rank a list of 10 possible benefits of bringing children to the Garden. Figure 9 shows the weighted average rankings for each of these items. As can be seen, outdoor play was the most consistently endorsed and highly ranked benefit, with physical activity and connection to nature the next most highly ranked.

One parent observed particular benefits for her children who had recently arrived in Sydney from overseas. She identified that the connection with nature prompted through visiting the Garden also helped the children feel at ease and connect to their new school settings.

We moved to Australia 12 months ago from living in Qatar. This is the first country outside of Qatar my children have lived and hence their first time experiencing the natural world beyond sand/desert. They have explored and learned an incredible amount about the natural world through our frequent visits to the park and playground (it helps living across the road!) and their learning at preschool and school has reinforced their natural curiosities.



**FIGURE 9:** Adult rankings of benefits of bringing children to The Ian Potter Children's WILD PLAY Garden (n=112)

In the children's survey participants were asked '*What are the things you like most about coming to the WILD PLAY Garden?*' Children nominated many specific features of the Garden, including the water features, slide, tunnels and bamboo forest. They also emphasised the freedom to play and take risks in a natural environment.

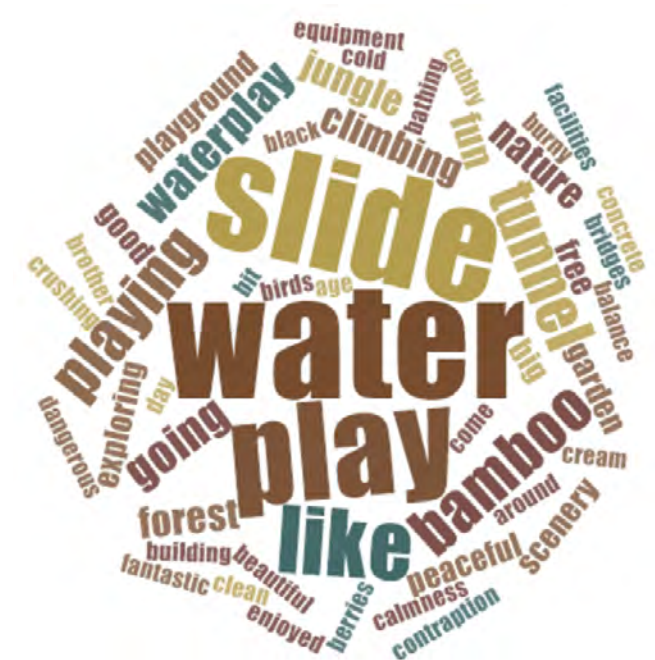
I like that there is lots of nature to play in where as many other parks just come with mesh on the floors and plastic, I also like that there is lots of space to run around and go exploring so that you can be free.

I like the house jungle dangerous wobbly thing contraption.

It is very jungly! Like a jungle. There is a real treehouse.  
Water play and the tunnel.

Further responses to this question are summarised schematically in Figure 10. As can be seen, both specific features of the site and ways of engaging in it were strongly emphasised.

It is clear from these responses to the initial survey questions that the Garden provides opportunities and spaces for outdoor nature play that are widely appreciated by a cross section of the local community as well as by regional and international visitors. The following section elaborates a more detailed analysis of children's engagement with the range of features on offer at the Garden.



**FIGURE 10:** What children like most about coming to The Ian Potter Children's WILD PLAY Garden

RESEARCH FOCUS 2A:

How do the specific features of The Ian Potter Children’s WILD PLAY Garden site encourage nature play?

Following on from the general question of what they liked about the Garden, children responding to the survey were asked what were their favourite things to do in the Garden. Their responses expanded on their previous comments, adding further emphasis to the activities they engage in at the Garden. Table 3 provides a number of emblematic examples.

TABLE 3: Children’s favourite things to do in the Garden

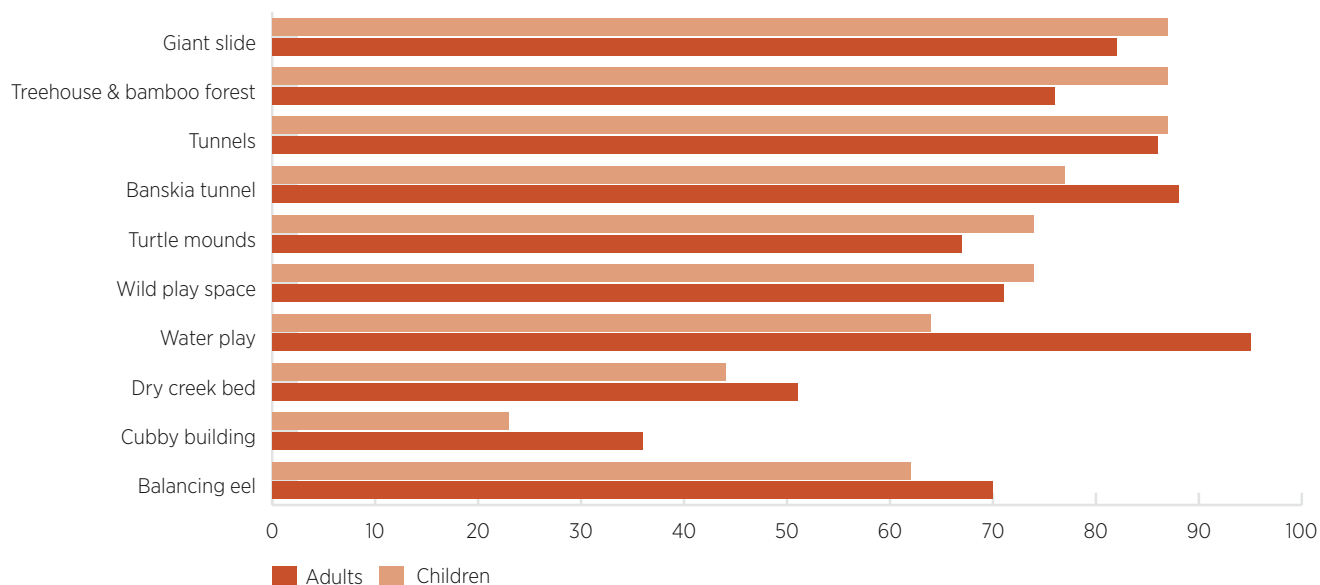
→ Getting wet in the water play
→ Standing on top of the water spray in the water park
→ Going down the big slide
→ Going on the slide and the bridge
→ Jump off the tunnels in the sandpit
→ Go through the tunnel
→ Playing, exploring, doing stuff, crushing things
→ Play hide and seek
→ Collect sticks and leaves and make a town
→ Do cubby building

While there are some familiar-seeming activities, the environment is engaging, rich and unstructured. It seems to signal an invitation to explore, and children respond with curiosity and imagination. Free exploration is relished for the opportunities it provides for sensory experiences, testing their physical capacities, building cubby houses, or making up games that enhance the sense of fun and creativity. They enjoy splashing, balancing, jumping, climbing, playing in the bushes, crushing things, doing ‘stuff’. There is a sense of discovery, both about the environment of the Garden and in relation to the children’s own capacities.

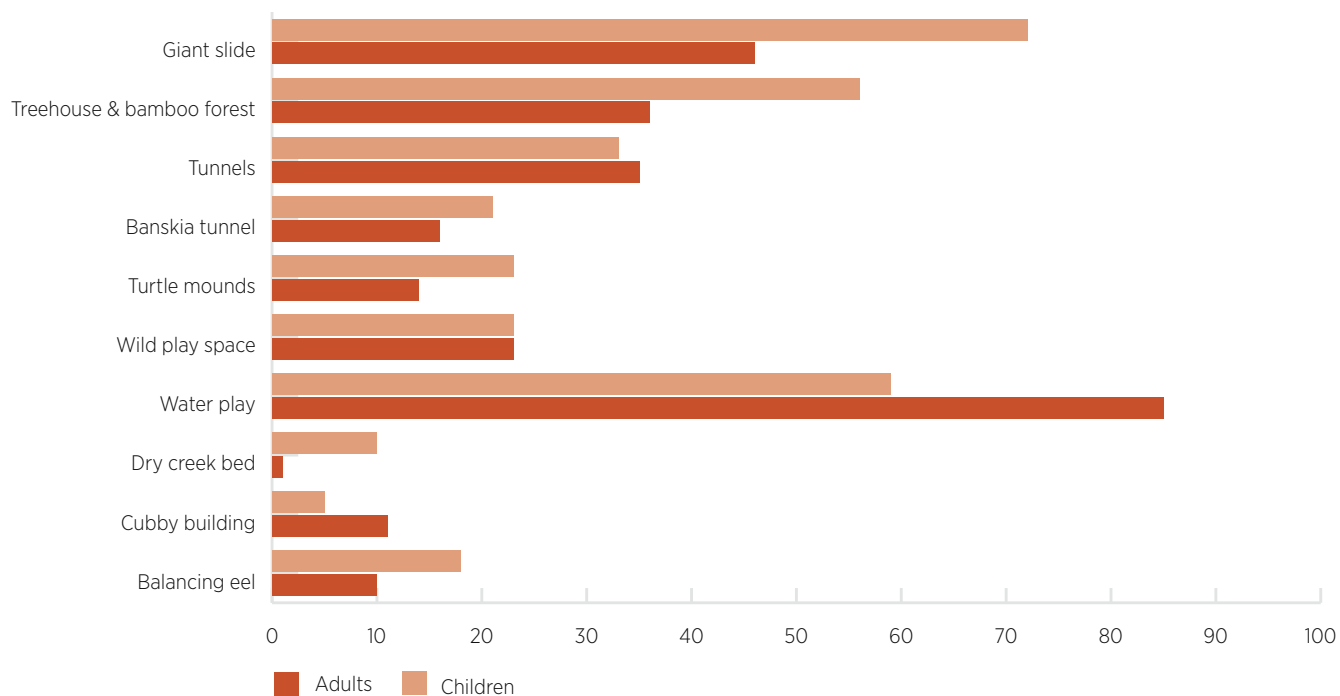
Further specific feedback on each of the play features at the Garden was also sought from both adults and children. Children were asked firstly to indicate for each of ten activity areas whether they had played there, and secondly to nominate their favourite area. Visual cues in the form of colour photographs were incorporated into the survey so as to ensure that children, and adults, could easily identify which area was being referred to. The adult survey included parallel questions, asking them to indicate which parts of the Garden they had visited with children and subsequently which parts of the Garden the children get most involved in. Figures 11 and 12 present and compare the responses provided by children and parents to each of these parallel questions in turn.

As shown in figures 11 and 12, there was wide involvement with all features of the IPCWPG. Differences between the preferences of adults and children in figure 11 reflect variations in the distribution of children’s ages across the two surveys. Water play is seen to be especially popular with parents. Given that the data was collected over the summer period the popularity of water play is not surprising. The children’s favourite activities are somewhat more evenly spread, with the giant slide, water play and treehouse/bamboo forest being most preferred. The two features showing the lowest level of preference, cubby building and the dry creek bed, both require the exercise of free imagination and unstructured engagement with nature.





**FIGURE 11:** Which places have you visited/played in?



**FIGURE 12:** Which places do the children get most involved in/are your favourites?

### Children's photo-voice

The photo-voice data provided further rich qualitative insights into children's engagement with the specific features of the Garden. Apart from one child who attended regularly with his class, the children whose photos and voices are featured below were visiting the Garden for the first time as an excursion with their OOSH centre. Although this was their first visit to the Garden, the OOSH centre had previously arranged an excursion to the OOSH in the Bush program at Centennial Park and another to the Australian Botanic Garden Mount Annan.

The director explained that the OOSH centre was committed to providing nature play opportunities for the children that attended their programs, striving to focus about 20-30% of the vacation care outings around nature. She observed that when they do such activities, the children, even those who tend to be anxious and frightened, become noticeably calmer, relaxed, and happy. However, when the children are asked what they want to do and when parents enrol their children, technology-based activities or movies are the most popular.

**Nature based activities don't fill up as quickly. Interest is more in technology. But afterwards they [the parents] notice the difference in the children.**

While the OOSH centre's own site had a large outdoor nature area, the director was interested in making it a more compelling space for the children to play in as she had the impression that currently the children "just didn't know what to do there". She was interested in gathering ideas from the Garden about how to set up a nature play environment and was inspired by what she saw.

**It's amazing...really, really great...there's lots of spaces for kids to search in discovery. There's lots of little nooks and crannies and places that they can crawl through and bridges that they can go over and stuff like that... there's not necessarily lots of things for them to play with, necessarily as toys, it's nice to see them actually engaging with different things and turning it into an activity.**

Prior to taking their photos and providing the accompanying narratives, the OOSH centre children were briefed on the photo-voice procedure and invited to spend a half hour exploring the Garden and identifying places they would like to introduce the researchers to. Despite the Garden being rather crowded on the day they visited, the children were eager to explore, forming small groups who fairly quickly found preferred spaces to play. They readily took to the concept of 'wild play', choosing to walk in the dry stream beds and scrambling over rocks rather than walking on the path alongside.

The OOSH group's unfamiliarity with the site no doubt accounts for the limited descriptive detail in a number of the narratives. However, their choices and commentary are nonetheless very revealing of the ways they were able to orient to the space in a short time and negotiate its challenges.

The first series of three photo-narratives below shows how children of different ages and skill levels oriented to the giant slide. We hear the first girl taking on the challenge with gusto, alternately sliding down or jumping down the climbing platforms.

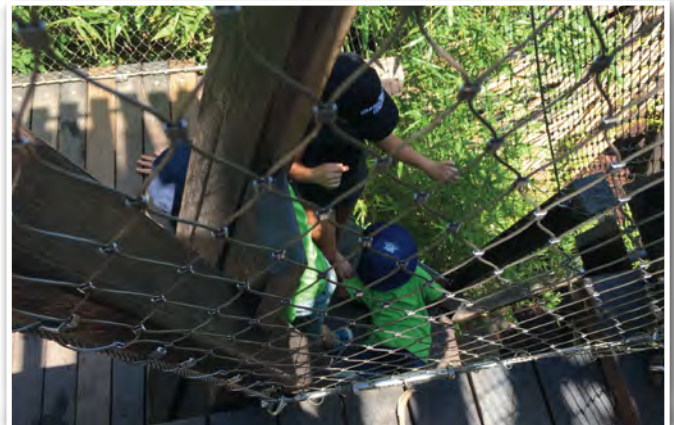


What's so great about the slide?

That it's so slippery and fun! I like the secret runway. There's a bridge here.

And I don't go down the bridge. I just jump all the way down here. And M couldn't jump down because there was a boy trying to get up. Can I go again?

A younger child is not quite ready to brave the slide, but is getting his confidence up by exploring the top of the slide with friends.



Can you show me what you took a photo of?

The top of the slide.

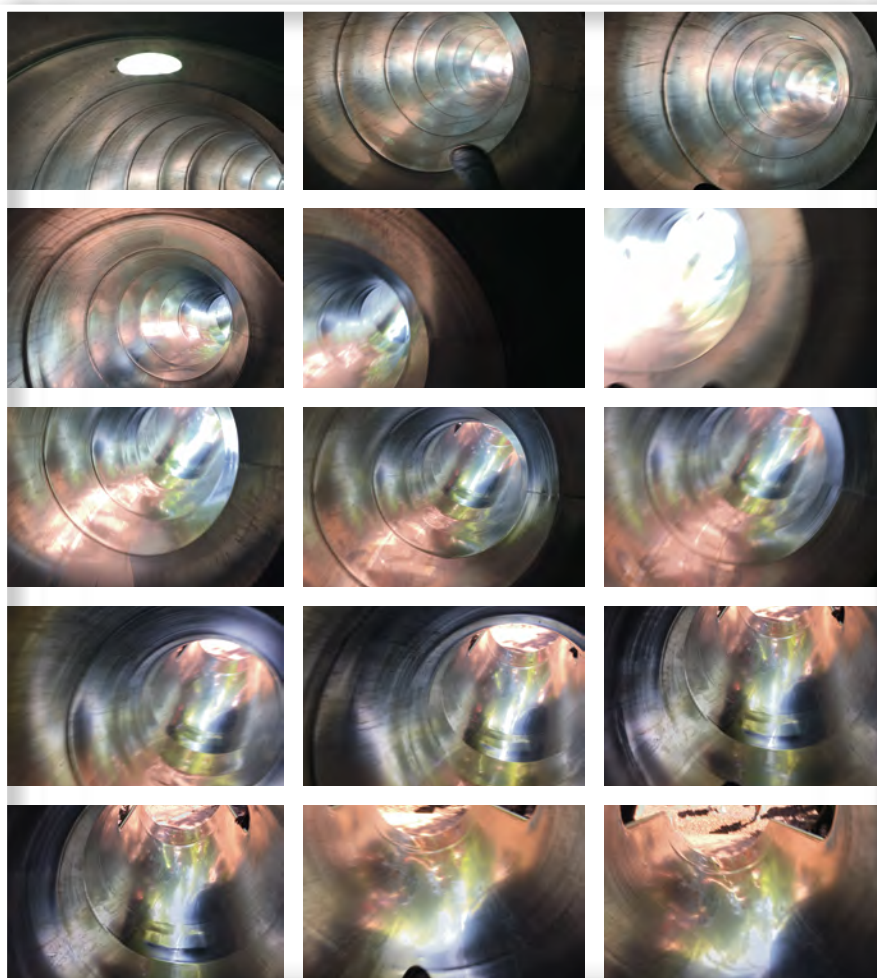
Why is this your favourite place?

I can climb the stairs up there with my friends and talk.

That's great. It's a place you can hang out with your friends. Do you like going down the slide, too?

I haven't been down the slide.

Perhaps as a way to support his younger more timid friend, an 8 year old boy chose to photograph the route down through the interior of the slide (below). The leading narrative records the conversations he had as he negotiated the task around the other children who were using the slide at the same time.



**Should I take a picture when I'm in there?**

Okay.

Hello.

**That's a photo.**

I know.

**Do you want to get in front of me?**

Going way too slow.

**Can I please go?**

Yes.

**Here!**

Oh! Let me have a look. Wow! Did you do that all the way down?

**Yeah. And I took a picture of that. And this.**



To reach the top of the slide children must first climb, scramble and balance across various surfaces, thus stimulating their physical coordination and promoting skills for planning, self-regulation and problem-solving. The following extended narrative involving three boys recounts their experience of the moving bridge that connects the treehouse to the giant slide. We learn how challenging their 'scary fear' heightens their confidence and their enjoyment.



Can you tell me why you took this photo?

Because it was so scary and I like scary stuff. I never tried it so I took that photo. And I also liked that whole treehouse because it was fun.

You taught him how to go up to the tree house?

Yep.

The first time when I went with my friend I climbed on the rocks and I thought there was like something to hold onto but you have to leave it and it was so lumpy and I feel like scary and that I was going to fall down

Did you feel like that? Did you feel like you might fall because there was nothing to hold onto? It was bumpy and it was moving, wasn't it?

Yes.

Did you also feel like that?

**A little bit.**

So how did you figure it out? Because you all went across it!

**I've been here before but I haven't done this. This was my first time doing the slide so it was new. I didn't know it was like that. But when you do it again and again, you get used to it. Your scary fear goes away.**

**I was a little bit scared at first but I knew it wasn't that scary even though I was slipping on the sand.**

You were slipping?

**A bit, yeah**

So I noticed that you crouched down on your bum when you got to that bridge and then you stood up and ran across. You all three did that, didn't you?

**I didn't sit down**

What happens when you go across the bridge?

**There's like a stair case. And there's like a hole and you put your other foot, and other foot, and other foot and then there's the slide.**

**That bridge looked scary when I first started but then I didn't feel scared at all!**

You didn't feel scared afterwards?

**I didn't feel scared at all at the end.**

Who came down the slide and who came down the big step things?

**I came down the big step things**

**I came down the slide**

**I came down the big slide the first time but it was too wet so I got my pants wet.**

Do you think other kids would like to come here?

**Yes!**

For those who are not yet ready to brave the giant slide, the Garden provides other challenges. The tunnel was a particular favourite with the younger children in the group and two five year olds chose it for their photographs. Entering the tunnel is scary because it is dark and confined. The children manage the challenge by crouching and walking through the tunnel and then running back overland to repeat the fun.



I like dark places and it's dark. Once I went to a place at a park where there was loads of tunnels and loads of pathways and from that day, I started liking tunnels. And like it's so dark and I like it.

I like to walk around 'cause it's scary and I like scary things. Like at Halloween I got this thing and my Mum surprised me with this thing and it moves and someone comes through this thing and I just put my hand on something and he just popped out and I was so scared but I liked it.



You can go down and up? Okay. And it's better than the slide, is it?

**Yeah.**

Yeah. Because you have to kind of walk through the tunnel. Do you? Or do you slide on your bum?

**I walk.**

And you run? Can you run in it?

**Oh. You run around here.**

The opportunity for quiet exploration of nature was a repeated focus in the children's accounts. The following photo-voice narratives show the depth of the children's engagement with the site and the ways that nature connection prompted their exploration and promoted feelings of peace and calmness.



Why did you take this photo?

**Because it's shady and it has lots of trees, and grass and I like how you can choose different routes, and down the stairs it feels like you're in a tropical forest.**

How do you feel when you're able to have lots of trees and lots of different pathways?

**Um, happy.**

What do you think makes it happy for you?

**Cause it's not that busy.**



So why was this your favourite spot?

**Well, because no one comes here, and it's a nice and peaceful space. And there's shade as well as sun.**

So when you came through here, what did you do?

**I just found it and I wanted to walk along the steps.**

How do you feel when you're in nature in this type of place?

**I feel happy.**



The dry creek bed offers further opportunities to get close to nature and explore its textures, sounds and creatures.



Why did you take this? Why do you think this is the best?

**It's like a rock path and at the end you climb up some rocks and you go up there. And there's a lot of grass and then the pathway stops at the part where's there's too many leaves and then you have to walk on the side.**

**Yah, and there's something I want to say.**

Yes?

**There's a little baby spider crawling on me.**

**It feels very ticklish.**

Ticklish? Are you worried about it?

**Nah, it didn't bite me**

And you can just brush it off or blow it off, can't you?

**But X blew it off and it used it's web to stick up.**

Have you been noticing more insects and spiders in this garden?

**Yes, I can hear them.**

You can hear them?

**Yah, I can hear the noises of them. I think I can hear cicadas.**

Nature engagement also provides great scope for improvisation and imagination, as identified in the following photo and narrative from one of the special needs children.



Do you want to tell me your favourite place again?

**I like the sand. I go over here and make things.**

What do you use to make things?

**I grab sticks and rocks.**

So there's a lot of stuff in nature you can use?

**Yeah. When we're here, we pretend there's fruit here and it falls on the ground. This is where the watermelons grow.**

**Yeah, we'll sit down and play games here. And me and M sit here and play games. This is where there are coconuts.**

Curiosity and a growing sense of nature connectedness were features of several narratives. Here we see how one boy reveals that his experience in nature is informed by a deep philosophical awareness of our human interdependence with nature.



What is it that you like about this place?

**As it contains a good variety of nature. There are the trees, all kind of creepy crawlers, and spiders.**

**Because we're in nature and all kinds of animals can thrive here.**

And how do you feel in nature?

**That I can rely on nature to supply everything. Everything around us is natural...I know I can rely on nature, even when it's friendly and unfriendly.**

Some of the children gravitated to a beautiful tree near the Garden entrance.

For three girls the chance to climb a tree was a rare opportunity that they relished.



What is it you love about the tree?

**I'm just going to sit here.**

Do you get to climb trees much normally?

**No. No. No. Because a boy cut his wrist so we can't do it. At [OOSH Centre] there are no trees to climb.**

Do you think they should have trees [there]?

**Yes.**

What about at home? Do you have trees?

**Yes.**

**I don't because I live in an apartment.**

Another girl spoke of her attraction to climbing and the benefits of this tree in particular.



Why is this your favourite place?

**Because I use the branches for climbing. I like climbing everywhere.**

**Because it's shady and you can climb it.**

How do you feel when you're climbing?

**I feel energised and happy.**

Are there other places you've been to where you climb trees?

**Yes, but this one is the best one. There are lots of branches so you can get up high.**

Do you feel scared?

**No. I just feel safe.**



## RESEARCH FOCUS 2B:

### What are the impacts for developmental and learning outcomes?

In this section we consider observed benefits of children's play in The Ian Potter Children's WILD PLAY Garden beginning with the researchers' direct observations of the OOSH group and extending to observations reported by adults in the survey. Observations enabled the researchers to identify the kinds of outdoor literacy and fundamental movement skills children engaged in at the Garden. The focus of this data collection activity was to observe children in unstructured, freely chosen, and self-directed play to gain insight into the movement opportunities afforded by the various spaces and places in the Garden.

#### Free Play and Risk-Taking

The diversity and number of play areas throughout the Garden, as well as the varied pathways, provide children with many opportunities to engage in solitary and social play. This was frequently observed within the same spaces. For example, one child was observed to be deeply engaged in sand play, while children were running in and out throughout the sand area. Children were also observed negotiating taking turns on their own, offering to help each other, and engaging in imaginative play and role play.

The Garden also affords children opportunities to explore their movements, and the limits of their movements, in a safe environment. The majority of the ground surfaces, other than at the rock and water features, allow children to run, dodge, balance, jump, and land on relatively safer surfaces than asphalt and concrete. Children were observed problem solving and becoming risk assessors as they navigated their way through the Garden. For example, they were observed testing their jumping and landing from heights onto sand and mulch off the top of the tunnel or from a tree branch, and negotiating the best route up and down a climbing tree.

#### Movement Potential

The variety of built and natural features, as well as diversity of pathways, creates high movement potential for children to explore their movement, as well as problem solve and test their limits for the development of new movement skills. For example, gross motor and locomotor skills were observed as children walked, ran, dodged, and jumped throughout the Garden. Navigating through the Garden challenges children to develop their personal and spatial awareness, to move around features and other individuals, and to accommodate uneven and varied terrain. Children were frequently observed at the tunnel and sand area moving at different levels, including crouching or crawling through the tunnel, as well as jumping and landing from heights off the top of the concrete tunnel into the sand area.

While to a lesser extent, various manipulative skills were also observed. The majority of these observations included children interacting with natural materials, including sticks, sand, rocks, mulch, bark, and leaves. Engagement with their surroundings also required manipulation, such as swinging from branches, finding handholds and footholds while climbing, and holding onto supports while crossing the shaky rope bridge. Table 4 lists specific movements noted during observations of children playing at the Garden, and indicates their contribution to the development of gross motor (Mot), locomotor (Loc) or manipulative (Man) skills.

**TABLE 4:** Children's physical development: movement observations at The Ian Potter Children's WILD PLAY Garden

OBSERVED MOVEMENTS	MOT	LOC	MAN
running and balancing around the tree house and slide	✓	✓	
pulling up onto the shaky bridge at head height using arms	✓		✓
leaping and skipping in open spaces	✓	✓	
playing with sticks; walking with sticks		✓	✓
walking through the tunnel at low crouch with sticks in both hands	✓	✓	✓
climbing on steep stone slope outside of tunnel	✓	✓	✓
climbing trees	✓	✓	✓
kicking sand, kicking gravel, kicking mulch	✓		✓
drawing with a stick			✓
running across shaky bridge to slide	✓	✓	
crawling in sand	✓	✓	
touching long grass			✓
running over rocks	✓	✓	

The Australian national curriculum identifies that the fundamental movement skills are “the foundation movements or precursor patterns to more specialised, complex skills in games, sports, dance, gymnastics and physical recreation activities. They provide the foundation for human movement and competent and confident participation in a range of physical activities (Australian Curriculum, Assessment and Reporting Authority (ACARA, n.d.). While there is some variation depending on the source, the fundamental movement skills are generally accepted to consist of locomotor, non-locomotor, and manipulative skills, including rolling, balancing, running, leaping, jumping, hopping, dodging, galloping, skipping, bouncing, throwing, catching, kicking, and striking.

The aim, particularly in early childhood education and the primary school curriculum, is to introduce all of these skills and offer children opportunities for practice and consolidation as early as possible, as they provide children with the building blocks for movement that lead to increased confidence and competence to lead physically active lives. The Garden clearly provides many engaging opportunities for children to develop a range of movement competencies.

The importance of physical activity through nature play for skill development was also emphasised in the Bush School parent focus groups. Parents reported the need for children to use their bodies when navigating the numerous obstacles in the Garden, having to run, jump, skip and estimate their speed, distance and reach. They reported delight in seeing their children running through the bamboo forest or crossing the moving bridge with care and then playing in the tunnels.

**When they come out and [they're] climbing up [the bridge] that's been cut down as stairs to get to the top of the slide that they come down. Ridges and tunnels on the ground like messy drain pipes that you don't generally think children should be playing in. It's fantastic!**

Gross and fine motor skill development and the confidence children developed while exercising these faculties through nature play were cited as being beneficial for brain development and a foundation for learning for life.

## Reported benefits for children's development and learning

The adult survey also yielded data from parents and carers who had visited the Garden in response to the question "From your observations, what particular benefits do the children get out of these activities?" Analysis of responses to this question

yielded five main themes: connection to nature; physical activity and skill development; freedom and risk/safety; creativity/ imagination; and social interaction. Table 5 provides exemplars for each of these main response categories.

**TABLE 5:** Benefits for children observed by adult survey respondents

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### Connection to nature

I love how open ended everything is and back to basics... being able to swing on a tree branch, drag things around to create, crush berries and seeds between rocks, etc. It's really missing from day to day life for my daughter and I remember it as part of my own childhood.

Stimulating interesting environment, different setting than normal, lots of textures, landscapes, materials to build physical skills.

---

### Physical activity and skill development

Confidence, joy (particularly from the water play, my son was squealing with delight) contentment (my son was contented after all that time in nature unlike he would be after playing at a regular park) developing motor skills, balance etc. He climbed to the top of the ladder to come down the giant slide today :)!

Joy of interacting with natural environments. Confidence in water and nature. Gross motor skills navigating the surfaces. Connection with the natural world. Antidote to indoor / tech lifestyles - improves wellbeing, appetite, sleep, etc.

---

### Freedom and risk/safety

The freedom to structure their own play outdoors around the different play areas, out of sight of parents but still in a safe, delineated space.

Unstructured play, imaginative play, freedom to make own choices and play unrestricted, non-conformist play. Getting dirty!

---

### Creativity/imagination

It fosters creativity and problem solving and also confidence, as there's no "right or wrong" - I think having space to just "be" is also incredibly important.

Imagination, free play opportunities, room to run and explore, and get wet. Nothing is fixed.

Pure fun, permission to get dirty, creating things, imagination unlimited.

---

### Social interaction

Lots of fun and active things to do in the outdoors with other children.

Social skills: playing with different age groups of kids who are enjoying the same activities.

Imagination, collaborative play with other children, inventing games, problem solving.

---

The examples in Table 5 above have been presented as intact statements in order to preserve the richness of the responses provided. Although the main themes could be readily discerned, many responses included sub-themes related to other categories, thus demonstrating substantial intersection and overlap among the themes. These findings are consistent with the emerging research literature into the effects of nature play and of the benefits of the holistic, immersive experience it offers (Adams & Savahl, 2017; Chawla, 2015; Gill, 2014).

## Reported benefits for social development

The adult survey also probed adults' perspectives on the impacts of the Garden for children's social development. It explicitly asked respondents whether they had noticed any differences in the ways that children play with each other in the Garden. Of 75 responses to this question 28 indicated that they either had not observed differences or that they had not had the opportunity to do so. In most cases this was because it was their first visit or their children were still very young.



The 47 responses that identified differences in children's social play, clustered around four main themes designated as cooperative play, adventure and excitement, imagination, patience and care. Independence also emerged as a minor theme. Problem solving was mentioned both as a skill learnt through cooperation and as stimulated by creative exploration of the Garden environment. Table 6 presents a range of nuanced examples for each theme category.

Although advocates of nature play frequently identify positive impacts for children's cooperative skills, the findings from parent and researcher observations provide valuable detail regarding the ways that children's play in the Garden is both facilitated and enhanced by the opportunities and challenges afforded. That many parents notice and appreciate their children's social skill development in this informal setting is also noteworthy.

**TABLE 6:** Adults' observations of children playing together at The Ian Potter Children's WILD PLAY Garden

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#### **Cooperative play**

They learn to take turns. We met other children who also speak French and they played together.

They play together more – e.g., in the sandpit, sharing toys, digging together.

They are keen to explore things, and they team up and co-operate with each other much better.

They play more together rather than independently.

They get along better than they do at home; they cooperate and use their imaginations.

They often work as a team to solve problems - or when building shelters.

They are joyous, they are cooperative and they problem solve together.

My kids may be less inclined to fight and more inclined to share ideas about what they are doing.

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#### **Adventure and excitement**

They are excited to share their experiences with other kids.

There is also a level of exhilaration with the giant slide and water park not seen in other spaces.

There is a large element of excitement and problem solving.

They did problem solving on how to climb up the treehouse tower by holding on to the chicken wire fencing as the platforms were actually too high for them.

Seeing another child being adventurous and jumping off a rock or a tunnel encourages them to try it when previously they may have been too scared to consider it

The older child – 8 years – encouraging and helping the younger one to do the more difficult, more adventurous activities

My eldest often connects with children who will play hide and seek, as I think he gets a thrill out of having so many spots to hide.

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#### **Imagination**

With nature as their 'play thing' we see far less incidents arising from needing to share – they are limited only by their imagination. There are more than enough sticks and rocks to go around!

I think it is a great space where the kids can create their own games and use their imagination to play together.

A lot of imagination based play. They make up storylines and characters for each of them to play.

Play is child-led and guided by children's imagination and engagement.

Very imaginative games utilising the different spaces.

More in depth imaginative play building things with friends

It's very different to typical playground play. There is more space for imagination, and children have to make up their own rules or games. It can lead to more conflict initially, but they usually work it out.

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TABLE 6: Continued

Patience and care

- My child is too young to really play with other kids; however he is content to be focussed on less things vs in indoor play centres where he rushes from area to area.
- They seem to act calmer than they do at a regular playground.
- More balanced with more patience.
- Peaceful and respectful.
- Patient and caring.
- They are very caring about the safety of each other, more so than in a normal playground.

Independence

- They ignored the adults and played together – good stuff.
- More independent, away from parents.
- My children’s play is determined by the natural surroundings.
- Probably less aware of other children’s activity and more engaged with nature itself.

RESEARCH FOCUS 3:

How do children from special needs and disadvantaged backgrounds engage with The Ian Potter Children’s WILD PLAY Garden? What are the particular challenges and benefits for these groups?

The research team had the opportunity to undertake intensive observations with one class of six from a local special school which served students with mild to severe learning disabilities, autism and/or behaviour problems. They had been visiting the Garden regularly with their teachers since Term 2 of the 2018 school year. Students in this class of 7-8 year olds experienced significant learning disabilities. Two also had physical disabilities that substantially limited their mobility. For this group of students, teachers identified particular benefits in a stimulating natural environment that allowed the children to have a sense of freedom and agency in their choices, encouraged the development of motor skills, promoted an increased sense of awareness, developed capacity for assessing and negotiating risk, and inspired verbal communication.

Stimulating natural environment/sense of place

The teachers highlighted the advantages of being outside in a natural setting with access to activities like the water play, tunnels and slide, varying environmental features that included sun, shade, sand, grass, woodland, bamboo forest, dry creek beds, and different textures and surfaces. Many more such opportunities in greater variety were provided at the Garden by comparison with their school’s concrete playground and single small climbing structure with synthetic soft fall underneath.

We just don’t have that space back at school. And it’s the excitement factor for them that they can run through a tunnel of trees and jump from rock to rock, and balance along the logs and things like that.

The stimulating environment enabled the students to explore a variety of sensory and movement activities. Through picking things up off the ground, walking, running, sitting on, and standing up from differently shaped and textured surfaces, they exercised a range of physical movements and skill development. They were excited by the water play, challenged to negotiate the giant slide, and enjoyed the quiet and warmth of the sunlit sand area in the bamboo grove.

Instead of remaining in their wheelchairs as they had to do at recess in the school playground, the two children with limited mobility had the opportunity to interact and explore in the Garden. Carers brought them to the sandpit space where they could lie and roll on the ground, walk barefoot, touch the plants, and wrap their arms around the trees. Regardless of the number of children in other parts of the Garden, or running nearby, these two children developed a sense of place in the bamboo and sand area. The teachers observed that, over time, they became more comfortable and confident to explore their movements in these spaces.

The researchers undertook close observations with one boy, G, who was deeply immersed in his exploration of the bamboo grove and surrounding sandy area.

I observed him gravitating to the bamboo and touching it, pulling on it. His teacher said he had it in his yard at home.

He was negotiating balancing in the sand.

Pressing the weight of his shoulder against the trunk of the palm tree – using the tree for support.

Later he was crouching on the rock, knees wide, hands flat on ground in front of him.

Then he was walking with assistance on various surfaces – sand, sticks, dirt, mulch.

G made his way back and forth from holding onto the palm tree or lying on the sand, negotiating a few steps through the leaves and sticks along the path, into the bamboo forest, where he lingered for some time touching, and looking closely at the leaves.



The teachers also talked about the children's sensitivity to sensory stimulation, noting how they would listen to the wind through the bamboo trees and leaves.

### Skills development through nature engagement

Teachers identified developmental gains for these students in locomotive skills, specifically in walking, running, skipping, jumping and climbing on a variety of surfaces. They also developed fine motor, manipulative skills through collecting, holding, and digging with sticks, touching and handling leaves or carefully moving aside a branch to observe an insect.

Great things for them is a lot of sitting to stand things.

Here, they can sit on rocks. If we set them on a rock, then that's using their legs to stand.

One of the researchers and a teacher spent a good part of an hour watching one of the least mobile children in the palm grove sand area.

S was lying prone on the sand, her weight supported by the soft, stable surface, reaching with her limbs, arms and legs,





one at a time. She was on her back, on her stomach and on her side in the sand, spending a fair amount of time in each position, moving slowly from one position to the next, often resting, and revisiting them multiple times during the time we observed her. While on her stomach she used her hands, arms and upper body to bring herself to her knees. Then, with the help of her teacher, she got into a low squat and, eventually, came to standing. During the approximately forty minutes that we watched her, she tried this at least three times, and came all the way up to standing at least twice.

The teacher noted that this was a huge amount of effort for this child, and after sessions in the Garden, many of the children would fall asleep in the afternoon either on the bus or once back at school.

### Awareness, risk assessing, and problem-solving

The teachers commented on the children's greater sense of awareness, ability to negotiate risk, and problem solving skills.

They realise there's a rock there and have to go around, there's a log there, I can't go too far. Just nice little things like that. You wouldn't witness that in school because we just don't have it. ...I've got a video of G trying to reach a plant but he obviously knew the log was there. So he was trying to stretch, and he actually ended up falling into it, but we didn't go to get him straight away and he ended up getting himself out of it as well.

The main teacher highlighted the important learning opportunities for her students in becoming aware of and negotiating obstacles, suggesting that the physical and cognitive skills associated with the students assessing and problem solving such risks were significant. She noted that at school, any obstacles that existed were padded due to safety concerns.

### Sensory exploration

The opportunity for sensory exploration was also noted as an important aspect of the Garden, especially for the non-verbal children. The teacher suggested that because of the heightened sensitivity of these children, they spent a good amount of time touching leaves of different plants, leaning against the trees, lying in the sand, and rubbing their hands against the bark. The sound of the wind, the dappled sunlight and play of shadow and light were also noted as beneficial sensory experiences.

They're very sensitive because they're not verbal, they're more sensitive than the others. ...So they're always picking things up and touching them. You saw G there just with the tree, like just rubbing his hands up and down that different kind of palm tree? He is often reaching over to touch leaves.

### Opportunity and impetus to engage in verbal communication

Another result of the weekly visits to the Garden was the children's anticipation of and familiarisation with the rituals of going to the Garden, from going to the bathroom and putting on sunscreen and hats at school to noticing landmarks from the bus. They also talked about their visits both before and after with people at school and with their parents.

People ask them back in school and they'll say "yeah, we went to the park today, we had fun, we went on the slide." That's great for them because even though two of them are quite verbal, their verbal skills are still quite limited.

For the most verbal student, coming to the Garden gave him the opportunity to practice his verbal communication skills with people he didn't know.

Like listening to K who doesn't always talk in full sentences, he didn't always use the right words maybe, is not pronouncing them. But when he talks about something that is really excited about, the vocabulary tends to come and come.

### **Educator support in the Garden**

When the teacher from the special needs school first planned her visit, she inquired whether there were any support services at Centennial Park for special needs groups. An educator was arranged to facilitate 30-minute nature play activities with the students when they first started coming to the Garden.

**So sometimes she brought clay and they would make just different things that they could see around them....The next time she brought chalks, and we were drawing on the rocks and on the logs and things. The next time she brought some little rocks with numbers on them and ... it was a bit of a nature trail. The next time we looked for things to make musical instruments out of. They loved it. C K and A especially were really quite engaged with that.**

Although the students could not sustain concentration on one activity for 30 minutes, the class teacher found the activities very valuable for engaging the special needs students and enriching their experience of the Garden.

### **Growing confidence and children's agency**

The teachers reported that the relationship the children had with the Garden, and their subsequent sense of agency and confidence developed over time. While the initial visits felt chaotic, with children running here and there, and provoked anxiety for both the students and the teachers, over subsequent visits, both the students and the staff began to know the Garden, had preferred spots, and created rituals of behaviour and activities. With experience, the students gained an increased sense of confidence about being in the Garden, interacting with the various spaces, negotiating with the other visitors, and showed a greater sense of agency about making such choices. Seeing their students' increasing agency and skills negotiating interactions in the Garden, the teachers and carers also became more confident in their students' ability to negotiate the experience constructively and their ability to care for them responsibly.

**I mean, look at K and C now. I never used to let them out of my sight, but they know where they can go. They would never go to the toilet without coming to ask, they would never go to the water without coming to ask. They've just got so used to that. And they know that we're always there.**

For these children with special needs their weekly visits to the Garden were especially enriching. They were stimulated and enlivened through sensory experiences and physical challenges in nature that would otherwise be unavailable to them. However, notwithstanding these possibilities, some difficulties with access remained. The special needs teacher noted that it was hard to manoeuvre the wheelchairs and pushchairs in the Garden. Although they had managed on one occasion to take the least mobile students on the giant slide, it had required a heroic effort. Consequently, they would like to have something more accessible for those children, perhaps a smaller swing, more tunnels, or a grassy hilly area with multiple textures for the children to climb on.

## RESEARCH FOCUS 4:

How might nature play at The Ian Potter Children's WILD PLAY Garden be associated with increased environmental appreciation, awareness and/or action?

The findings so far have shown a high level of engagement in the Garden, along with evidence of children's enjoyment and skills development. Included in the benefits observed was a strong theme linking the sensory experience of nature to a sense of connection and wellbeing. Here we inquire to what extent this sense of connection and of gaining something from nature may be reciprocated through firmly held attitudes of care for nature and/or taking active care of the environment.

### Children's attitudes towards outdoor play

The Children's Attitudes to Outdoor Play (ATOP) scales (Beyer et al., 2015) were developed to assess children's beliefs about the value and safety of play in nature. The ATOP was included as part of the children's survey to provide insight into the ways that children's thinking might be related to their experience of the Garden. ATOP findings are presented in Table 7.

Table 7 lists the ATOP items from highest to lowest percentage of agreement. As can be seen from the raw numbers in brackets, the responses totalled 40 for all but two items, which had 38 and 39 responses respectively. The first seven items show a clear trend demonstrating positive attitudes towards outdoor play. This corresponds with the first of two factors identified by Beyer et al. as benefits of nature. The remaining three items form part of the second factor, fears of nature. (Two other items relating to fear of strangers and fear of people with drugs were not considered relevant for this investigation of the Garden and were not included in the survey).

As this data is cross-sectional and does not include a control group it is not possible to determine the extent to which the ATOP findings represent children's pre-existing attitudes, or how much they may have changed as a result of attending the Garden. However, since the children responded to this survey item after first identifying the features of the Garden they liked most, it is very likely that their responses to the ATOP were influenced by their perceptions of the Garden. The ATOP items that received the strongest endorsement, i.e., those emphasising exploration, learning and freedom in nature as well as feeling healthier and making up games, are consistent

**TABLE 7:** Children's attitudes towards outdoor play (N=40)

HOW MUCH DO YOU AGREE OR DISAGREE WITH EACH STATEMENT?	AGREE	DISAGREE
I like to explore new places outside in nature.	95% (38)	5% (2)
I learn new things when I play outside in nature.	88% (35)	12% (5)
I feel like I have freedom when I play outside in nature.	88% (35)	12% (5)
Playing outside in nature makes me healthier.	87% (33)	13% (5)
I like to make up games when I'm outside in nature.	85% (34)	15% (6)
Playing outside in nature helps me think more clearly.	77% (31)	23% (9)
When I'm angry, playing outside in nature calms me down.	72% (28)	28% (11)
I am afraid of wild animals or insects outside in nature.	27% (11)	73% (29)
I am afraid of getting lost outside in nature.	20% (8)	80% (32)
I am afraid of getting hurt if I play outside in nature.	18% (7)	82% (33)

with the themes identified from the open-ended survey items. Exploration was particularly strongly endorsed, and was also prominent in both the children's and adults' perceptions of what they enjoyed at the Garden.

The cognitive and wellbeing benefits of the Garden were evident for many children but were not as strong as the exploration-oriented benefits. As shown also in Figure 7, fears, particularly of wild animals or insects, were significant for 27% of the child survey respondents. Some also had fears of getting lost or hurt in nature. Although the ATOP findings do show that, across the sample of 40 children, positive attitudes towards nature are stronger than fears, it is important to recognise that holding a positive attitude towards the benefits of nature does not preclude at the same time holding fearful attitudes about aspects of nature.



### Children's nature responsiveness

The adult survey asked whether participants had noticed any differences in the ways that children respond to the natural world in The Ian Potter Children's WILD PLAY Garden. Seventy-one percent of respondents to this question (49 out of 69) indicated that they had. They provided various observations of how their children's engagement with nature

had been enhanced through visiting the Garden. Key themes identified from these observations included exploration, nature appreciation, curiosity, sensory engagement and immersion, unstructured and free play, and imaginative engagement. Table 8 presents responses to this question, categorised by themes, and shows the percentage made up by each listed theme in the response breakdown.

TABLE 8: Impacts of the Garden on children's nature responsiveness

REPORTED OBSERVATIONS	COVERAGE
<b>Exploration</b>	18%
They like to explore and "go on an adventure" through the bamboo shoots and tree house. More willing to get dirty.	
They are excited to explore, because nature is wild. And I think they appreciate the beauty of it.	
Children are very close to the nature and its diverse features here while being free to play around, so they spend more time exploring and learning.	
Willing to explore more, rather than being told to avoid stepping in the garden.	
More exploring than other places. They feel safe to explore.	
<b>Nature appreciation</b>	14.92%
It helps enhance their love of nature.	
More aware of nature.	
They do seem to respect the environment and I see lots of parents encouraging this.	
It's like finding an oasis, a natural environment amidst a dense city's built environment. They don't feel like a stranger in an environment with green pasture, lakes, trees, various topography of walking terrains - as it should be.	
Using nature in different ways such as hiding places, climbing and balancing.	
I think my son really appreciates and looks for nature play opportunities outside the garden, since we have been going to the garden.	
<b>Curiosity</b>	14.29%
More inquisitive and interacting with the abundance of flowers, insects and variety of plants.	
Yes, very curious and asking a lot of question about the environment around them.	
They were proud to share their knowledge of what we could see, and keen to learn more.	
Sense of wonder and excitement.	
They are more keen to touch plants and trees, more curious about birds and wildlife and are excited about sand and water play.	
They're amazed and fascinated.	

TABLE 8: Continued

REPORTED OBSERVATIONS	COVERAGE
<b>Sensory engagement and immersion</b> They can really engage with it, everything gives them the opportunity to touch and climb and build and dig. Often in other playgrounds my son plays on the play equipment and nature is just the setting. They are immersed in it with all their senses. The scale of the paths and the gardens make it easy for kids to immerse themselves and enjoy the gardens. They are more keen to touch plants and trees, more curious about birds and wildlife and are excited about sand and water play. They notice the details, like the fuzz on bamboo, that they wouldn't otherwise be exposed to in standard children's playgrounds.	13.09%
<b>Unstructured and free play</b> Sense of freedom and agency. They are happy and run free. ...this playground gives my crew a wide and diverse playtime in a total natural area. Happy and free. It's great to see my kids go 'off the beaten path'. Initially they gravitate to the structured forms but over time, have sought out more unstructured play in the bushland. The school holiday programs have helped to foster this. Play is unstructured and allows for more risk taking.	10.63%
<b>Imaginative engagement</b> They use their imagination more. More willing to play within the natural world. I felt that her imagination was sparked quite a lot more than in your average playground. There is an element of natural surroundings that is very magical. My son partakes in activities that are nature play based, the garden was able to show me that he is confident in nature and in taking appropriate risks e.g. climbed the waterfall. With imagination.	9.21%

These parental observations show strong engagement and appreciation of the opportunities provided by the Garden from 71% of parents. They highlight the richness of experience available through nature play and its importance for children's development. However, despite this strong appreciation of the benefits of nature play in the Garden, only 30 of the adults surveyed (27%) identified that visiting the Garden had influenced their child's behaviour or learning in other contexts such as at home or school. A further twenty-five (22%) indicated either that they had not observed any influences or that it was too early to tell.

Those benefits that were identified included growing awareness and interest in nature themes, as well as engaging in nature play in other locations, and transferring games and play started at the Garden into other settings. For example:

Paying more attention to issues in which Nature is involved.

At other parks and in our garden my daughter takes more interest in the natural environment - gathering 'treasures' and creatively using the items she finds.

My kids are 'farm kids' at heart. So they have really found a space that suits them and that they respond to incredibly well. It's been a really important part of our lives.

Kids been asking their teachers to have a WILD PLAY at their school. Wanting to build a garden at home.

One parent of two 5-12 year olds felt that the Garden was better suited to pre-schoolers. This was due both to crowding and to limitations in the scope of creative nature play that was available there.

**At the time when we can visit (weekends, holidays) the garden is very busy... The crowds and the noise, as well as the lack of space and limited creative activities (the garden was designed with very limited options of actually modifying the environment by children themselves) resulted in my children NOT wanting to go there again.**

Crowding at particular periods was also raised by some other adults and children. While it was experienced as limiting, only the parent quoted above indicated that it had discouraged her children from returning to the Garden. This parent went on to note that her children preferred to play in a more open forest area nearby.

**So if I now ask whether they want to go and play in the Centennial Park, they reply “Yes, but please let’s go to the FOREST”. The forest is a semi-wild patch of trees on the other side of the WILD PLAY Garden - there is no fence, lots of trees and bushes, big stones, patch of dirt and lots of branches to build cubby houses. My children love lifting loose branches on one of the trees and building their “tree house” there. There is lots of space, very few people, birds are visiting and the place feels very “natural”.**

This comment points to different perspectives regarding the parameters of nature play, what best constitutes a natural environment to encourage ‘wild play’ or nature play, and indeed how parents see its purpose. Interestingly, the ‘forest’ identified in this comment is the site used by the Centennial Parklands educators to run their Bush School program.

### **Extending the benefits of nature play – Bush School parents’ views**

Bush School provides structured facilitation over a period of several weeks to engage both children and parents in exploring the benefits of nature play in an Australian landscape. The Bush School parents who participated in the focus groups emphasised the need to have spaces like the Wild Play Garden and Centennial Park so their children had an understanding of nature. This was seen as particularly important given the number of children who were growing up in apartment buildings or medium density settings.

One carer and young child pair contrasted the experience of the bushland setting with that of a built up urban setting. In the bush birds and insects could be heard alongside the rustling of trees. In the city, however, the wind was mixed with pollution and dust and made a ‘vroom’ sound that was ‘not good’.

Nature play was strongly advocated by all the Bush School parents. They made clear the importance they placed on their children spending time in wild play spaces in order to enhance their environmental appreciation and awareness.

**If you understand nature you have a love for it, then you’re going to have a respect for it. So you don’t need to necessarily go and learn about certain words, because you already understand it from a young age how important the environment is.**

One parent elaborated the way her children “just kind of melt into the bush” following their experience at Bush School. She spoke of the bush being part of them and them being part of it. This experience of connection to nature had profound benefits for children’s holistic development.

**Because it’s not like, oh, I’m going into the Bush, you know, it’s just like, hey, I’m home. This is a space for them to be in, and I feel like it is reciprocal. You know, they’re not just making the use of the space, but they’re actually, learning and gaining. Every time they jumped from one rock to another, that’s something that, you know, it’s part of that to and fro relationship. I feel like nothing I’m saying is [or needs to be] actually articulated. But yeah, I do. I feel like there is a connection and it’s a really beautiful thing. And it’s like, it is a connecting place.**



Another parent spoke of the need for children to take their shoes off, have their feet on the grass and connect with nature so as to support healthy development. She also felt strongly that, with increasing social and environmental unpredictability, connecting to nature could help children develop the thinking skills needed to manage the challenges of the future.

...they have to actually be able to free think and think laterally. And I think being in these environments actually helps children to think outside the box rather than that didactic teaching that most of them get in school.

The opportunity and encouragement for creating play scenes, physical challenges, and a wide variety of visual, textural and sensory stimuli was considered a substantial boon for children's learning and development. Bush School parents credited the wild play environment with assisting their children's imaginative capacities and inspiring creativity that would stand them in good stead into the future.

Because childhood isn't just preparation for adulthood. This is an amazing part of their life. So they're enjoying it now, but it's also setting them up for that opportunity for life when they can be creative thinkers. And they can just be inspired to do whatever they want to follow their passion without feeling guilty.

This possibility of unrestricted imagination was contrasted with the impoverishing effects of screen play, which left children seeking to be entertained rather than generating their own creativity in outdoor wild play sessions.

Whereas if they've been in front of the screen, they're constantly asking for entertainment. They want you to do it for them. So there is a massive, massive difference. It's imagination. Creative, like what can we do with a stick? What can we do with clay? What can you do with water and mud? It's just imagination. It's endless. So I think that's what is good for them.

The link between children's physical development and learning to negotiate risk through nature play activities was clearly articulated by several Bush School parents. They emphasised the need for parents to allow children the opportunity to freely explore so they would not 'shy away from fear'.

So if you're letting at this young age, when they wanting to explore, and you're not limiting and saying, oh, no, no, no, that's dangerous. If you start telling them that, that's when they start closing down and thinking everything is scary. And what other risks in life are they not going to be able to take because they weren't allowed to do these things as young children?

For some parents it was initially challenging to let go their own safety concerns in this way. They acknowledged that this was something they had learned to do through their participation in the Bush School program and through seeing the benefits for their children. Skills and strengths were developed through being encouraged to explore.

They become little scientists like they're sort of taught to explore and to trust their instincts...

Learning to take risks, to fall over and get up again, was associated with wild play and with growing confidence both for children and their parents.

... they learn to be a little bit dangerous. They learn to be a little bit wild. They learn to do things that ... We're so busy building playgrounds with soft fall, which is important, I get it. But if they learn how to fall over, they learn how to climb, they learn how to...

The benefits of play that supported children in developing their capacities to manage risky activities thus supported not only children's development but also parents' understanding of what the children could learn from nature play.

He's not a naturally physical child, but he loves to be physical. And I think if we didn't have a space like this, we'd be going to parks a lot or whatever, but it's a lot more work. This comes naturally and then it just comes home with him and he's up our tree in the backyard.

There are some clear similarities between these observations from Bush School parents and the comments of those survey respondents who had noticed differences in their children's engagement with nature. However, there was still a significant proportion of parents who indicated that they had not observed changes in their children's nature responsiveness. This raises the question of what would happen if those parents were given the opportunity to participate in an education program to learn more about the benefits of nature play and to develop their own appreciation of the natural environment.

Bush School parents recommended parent education for the Garden. They commented that some parents they encountered at the Garden appeared anxious about letting their children engage freely in play and suggested that education could assist parents to relax enough to let their children take calculated risks.

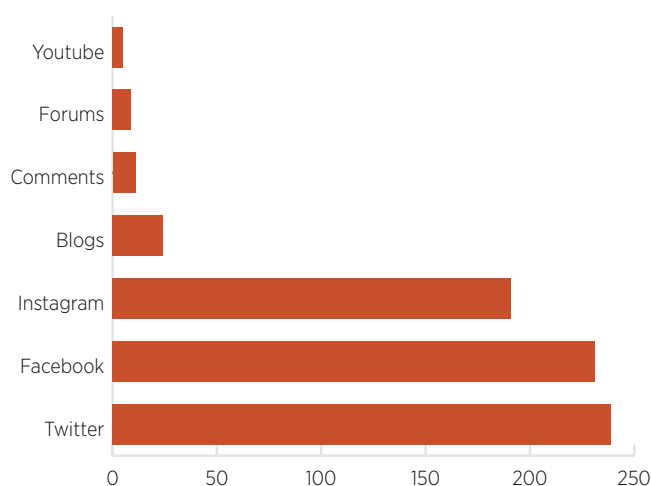
**I mean maybe they could have lessons for parents on how to just let your children enjoy nature and the value of it. And when you [see] that my first instinct is oh don't take over. But then I think, no, hang on. You know, if you had like two sessions a week where parents could come along and maybe just play the games with the facilitator and their children and then that's a skill that they take home with them that could possibly work.**

In summary, evidence of enhanced environmental connectedness in children was identified in the children's and some parents' responses to the surveys. This was strongly linked to opportunities to explore freely and engage in unstructured and creative play in nature. Parents who had engaged in the guided learning activities provided by education staff through the Bush School program strongly endorsed the benefits of nature play for children and for their own learning as parents.

## RESEARCH FOCUS 5:

### To what extent does The Ian Potter Children's WILD PLAY Garden provide an inclusive community gathering space?

While the stated aim of 'building and strengthening' an inclusive community gathering space is impressive, it was somewhat challenging to operationalise for the purpose of the evaluation study. Some aspects of inclusion, such as cultural diversity and children with disabilities, have been addressed in previous questions. Accordingly, this section focuses more on the broader evidence for the Garden being a space where visitors 'can meet, relax and enjoy being immersed in an inclusive and safe natural environment.' To this end, aspects of both the adult and child surveys were examined or re-examined. Collated data gathered from social media by Centennial Parklands staff were also reviewed, allowing different elements to be considered for the analysis.



**FIGURE 13:** Distribution of self-initiated social media posts regarding The Ian Potter Children's WILD PLAY Garden

Social media and community

Social media provided evidence of broad community interest and engagement in the Garden. The video introducing the Garden has been viewed over 446,000 times. From October 2017 to December 2018 Centennial Parklands posted 32 facebook posts about the Garden, which in turn generated over 17,600 reactions, comments or shares. Across a range of social media platforms 710 self-initiated posts were identified. These comments were overwhelmingly positive endorsements and tags inviting others to meet at the Garden, for example: ‘Check out this place. The kiddos will love it’; ‘Want to do this Monday morning with the bubs?’ Figure 13 shows the distribution of comments across various social media platforms.

The social media data indicate that the reputation of the Garden has wide reach and has generated a very enthusiastic community response.

Appreciations

Findings outlined previously in this report have identified the ways that people engaged with the various features of the Garden and what they view to be the benefits for their children. In a final survey question respondents were asked whether they had any suggestions for what could be improved. Twenty five percent of adults who responded to this question gave very strong endorsements of the Garden as it is. Table 9 shows the unsolicited appreciations they provided.

These comments demonstrate the extent to which these families felt the Garden provided an opportunity to ‘meet, relax and enjoy’ the natural environment of the Garden.

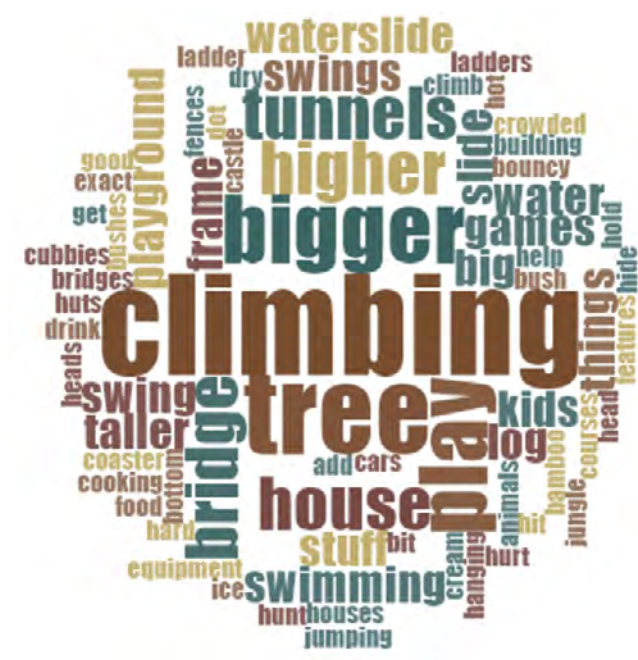
TABLE 9: Appreciations from adult survey

I absolutely love it. I also love that you are starting to run some education workshops in the garden.
It’s amazing!
I absolutely love it. It’s a decent drive here for me from Epping but I am willing to do it because it is such a great experience for my son. (Also thank you for the coffee cart which makes it a good experience for me too :))
Loved the greenery and plants inside Love the bamboos and fiddle leafs and succulents and varied foliage and herb garden on the mounds Tree climbing is lovely. It’s a beautiful space.
We love it as it is.
It’s pretty perfect already.
Place is fantastic.
Only that it would be wonderful to see more gardens like this for children!! Both my son and I gained so much for our visit today, we plan to go more often now that he is older.
I really love the place. Sometimes it is too busy to be enjoyable - so making it bigger would be great.
It’s brilliant, we love it and hope to see more of its kind.
Keep it as ‘wild’ as possible.
I think it’s an amazing space! Maybe a children’s vegetable garden to learn about planting and harvesting?



## Suggestions for improvement

Children were also asked in the child survey for their views on what might make the Garden an even better place for kids to explore nature. The children responded with direct and explicit suggestions, providing evidence of their sense of ownership and enjoyment of the Garden. Figure 14 depicts their responses as a word cloud. As can be seen, more scope for climbing, as well as a bigger playground and bigger equipment, came out as the most frequently cited preferences of the child survey respondents.



**FIGURE 14:** Schematic overview of children's suggestions for The Ian Potter Children's WILD PLAY Garden

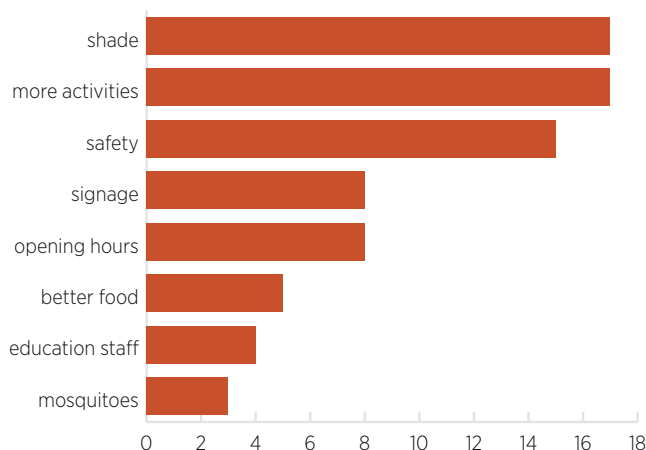
Table 10 further elaborates and contextualises the children's specific suggestions and shows the proportion of responses that referenced each themed suggestion. The thematic breakdown enables closer inspection of the children's suggestions.

These suggestions from children about how they would like to see the Garden developed provide helpful input into any plans for further development of the Garden site. A general tendency towards requesting more physically challenging equipment and spaces is consistent with the higher number of children in the 5-12 age range who responded to the survey. At the same time several comments request more safety features – something to hold onto, something so kids don't hit their heads. It is also of interest to note the expressed desire to play in or on trees in one form or another, including requests for a tree house – possibly in addition to the one provided currently.

While there was widespread appreciation of the Garden, adults also took the opportunity to identify things they would like to see improved. Thematic analysis of their responses yielded the themes shown in Figure 14, arranged by the frequency with which they were mentioned.

**TABLE 10:** Children's themed suggestions for the Garden

THEMED EXAMPLES	COVERAGE
<b>Climbing</b>	<b>12.33%</b>
→ Climbing frame	
→ Have a climbing tube (reverse slide).	
→ More obstacle courses and things to climb on	
→ Some climbing features	
→ Have climbing resource with ropes	
<b>Bridge</b>	<b>10.39%</b>
→ Have a longer and higher log bridge	
→ Higher rope bridge without fences	
→ More bridges	
→ Something to hold onto when you get on the walking bridge, it was hard	
<b>Bigger</b>	<b>9.00%</b>
→ Bigger playground	
→ Bigger - it is too crowded, add more things to play with and on	
→ Maybe bigger	
→ More big bushes, more big play stuff	
<b>Tunnel</b>	<b>7.20%</b>
→ The tunnel could be a bit taller for taller kids don't hit their heads	
→ Tunnels higher	
→ More tunnels	
<b>Slide</b>	<b>4.57%</b>
→ Two slides	
→ Not a metal slide because I hurt my head to it. Plastic.	
<b>Swimming</b>	<b>4.02%</b>
→ A pool	
→ More swimming	
→ Bigger water play	
→ Water, lake swimming	
<b>Ladder</b>	<b>3.95%</b>
→ A ladder	
→ Ladders up the trees	
<b>Swing</b>	<b>3.81%</b>
→ Swing	
→ Tree swings	
→ Hanging rings for swinging	
<b>Tree house</b>	<b>3.19%</b>
→ Tree house	
→ Have a tree house	
<b>Waterslide</b>	<b>2.22%</b>
<b>Tiny huts/houses</b>	<b>1.66%</b>
→ Tiny huts	
→ Little houses	

**FIGURE 15:** Adults' suggestions for enhancing The Ian Potter Children's WILD PLAY Garden

As Figure 15 shows, shade was the most frequent suggestion from adults. This was a particular issue at the artesian water play area.

Around the water play area there is a big need for more shade, not only for the children but all the parents/carers watching. ... no matter what time of day, there isn't enough shaded areas for parents supervising.

Safety was raised by some parents in relation to supervising young or vulnerable children. The Garden layout and vegetation make visual supervision of children challenging. This was observed by the researchers and was commented on by one of the survey respondents.

Self-closing gate at the top. Unfortunately with the setup is very hard to monitor your child without helicoptering after them and people prop the gate open. There's no point having a gated area if you can't close it. I find this terrifying as my son is non-verbal with special needs. Better visibility of kids in the giant slide area. Especially where they go once they come down. So many areas to run off to and a parent would never know.

**CHILDREN MUST BE SUPERVISED AT ALL TIMES BY A RESPONSIBLE ADULT AS THIS GARDEN INCLUDES CLIMBING APPARATUS, ROCKY AND WATER PLAY AREAS.**

**Figure 16:** Safety sign at The Ian Potter Children's WILD PLAY Garden gate

There were also a number of safety comments made in relation to the shaky bridge. Most suggested there needed to be a rail. One parent explained her experience in detail.

**The suspended bridge to the slide when wet is a hazzard. When it was wet I took one step on it as an adult and fell on my bottom. I injured my hands and 4 of my fingers to brace my fall. I am a yoga teacher with great balance. I am into children taking risks but I believe that this piece of equipment is unsafe and creates injuries. I have not returned with my children since because I believe that it is unsafe.**

Signage was an issue, particularly the lack of it when trying to locate the Garden.

**The signage was shocking. I did 2 full circuits of the park before finding it.**

Signs within the Garden were also recommended, to identify risks at the giant slide and also to point out the toilets.

Opening hours were raised frequently, particularly in relation to young children who may have sleep schedules in the later morning.

**It should open at 9am. 10 am is too late with young children as it impacts on rest time.**

One comment highlighted the benefit of extending opening hours to alleviate crowding and make the Garden more amenable for children who are sensitive to noise and crowds.

**Extending opening hours for Wild Play will make it more accessible for the sensitive children who cannot stand noise and crowds (my younger one has ADHD and the older one is an introvert). It will be also a more relaxing experience for their parents (maintenance etc., can be done in much earlier hours like 6am, especially summer time).**

More healthy food choices within the Garden were seen as important.

**It seems at odds to have such a commercial food offering only in a play space that is all about nature, instead of having a lovely timber hut or so that serves coffee, water and a few healthy snacks!**

Having education staff or education programs available in the Garden was suggested several times. The problem of mosquitoes being intense under the trees was also raised, with one recommendation suggesting plants that deter mosquitoes.

Most of these recommendations suggest practical resolutions for 'the Garden management to consider. Perhaps least straightforward, however, are the safety issues raised. On the one hand the Garden seeks to be a safe place for children to explore nature, and at the same time experiencing and managing risk is seen as important for their development. Given the aim of catering for children of all ages and abilities, balancing safety and risk for such broad needs and capacities seems likely to be a challenge.

The adult survey respondents also offered suggestions for specific play activities. Table 11 shows that some proposed more activities, some wanted additional nature activities, while others wanted more activities for either younger or older children.

On the whole these ideas from adults correspond with what the children wanted. Overall, the evidence of family engagement with the Garden shows very strong engagement and satisfaction. Its success has led at times to problems with crowding and hence to ideas about making the Garden bigger. Its popularity with all age groups, beyond the 5-12 year olds it was designed for, has raised some questions of how to effectively cater for all ages and abilities. These issues are further canvassed in the discussion below.

**TABLE 11:** Adults' specific suggestions for enhancing play activities

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**Provide more activities**

- A climbing net
  - More features to diversify experiences, such as a bigger maze, some mini-boating and other water activities in the nearby pond, tree climbing, outdoor art exposition (sculptures of Australian animals), water labyrinth for model watercraft...
  - A second water area so kids aren't so concentrated in the one area, maybe the second area could be a calmer water play area like the water tunnels/streams at the park in darling harbour. Also more sandpit area
  - Music or sound making activities
  - More climbing activities, more and longer tunnels, perhaps a kind of maze - not a traditional maze but an area where they have to find their way through
  - More activities, slides, swings, interactive facilities would be great. Too much concrete in the water play area.
  - Make it bigger overall, extend forest from bamboo into a pine forest. A climbing area like a large fake tree to climb.
- 

**More nature activities**

- A butterfly topiary - a worm farm - an ant farm - animal shaped hedges - small brass/clay animals "hidden" amongst nature for the younger toddlers to "discover" since animals at the wild play garden are lacking (e.g. lizards, rabbits) - an outdoor mud kitchen - an outdoor musical area - a sandplay area - science area (e.g. magnifiers, artificial fossils, water pumps) - mini farm (e.g. rabbits, fowl birds) or a collection of real animals e.g. native insects, birds
  - More natural loose parts for creative construction
  - It would be fantastic to have another natural structure added on - to relieve congestion.
- 

**More for young children**

- Yes...!!! There is so much beautiful space down the bottom.. under the trees but apart from rocks or logs there really isn't anything else to do... I would love some more climbing equipment for toddlers. The big slide is too much for the younger ones
  - Increase equipment areas for less than 3 year olds, large slides scary
  - The water play area is very small and since it's very popular it would benefit from being bigger; More bins; Slide for smaller children as the slide currently there requires a lot of climbing that is too difficult and high up for children under 4-5 years of age.
- 

**More for older children**

- It could be bigger with high ropes courses for older children
  - More opportunities to modify the environment and engage in risky behaviour - the garden feels like it's been designed for 2-6 yo and it is not challenging enough for 8-12 yo kids,
  - Also, please build somewhere a real adventure playground for creative and more challenging play for older children (6+).
-







# DISCUSSION

The resounding popularity of The Ian Potter Children's WILD PLAY Garden attests to the importance of creating spaces within the urban context that facilitate human interaction with non-human nature (Soga & Gaston, 2016). Children and families responded with enthusiastic engagement to the nature-rich landscapes and activities they encountered.

By building in design elements that encourage children to explore the Garden and all it has to offer for themselves, the site affords key features identified as encompassing nature-based free play. These include opportunities for creative expression, physical activity and challenge, engagement of senses and enjoyment, as well as play that is child-driven (Giusti et al, 2018). This kind of nature play is associated with the development of physical, social and self-regulation capacities that are beneficial for growth and wellbeing (Chawla, 2015; Gill, 2014).

Research suggesting that Australian children are lacking in basic movement skills which limits their physical activity (Barnett et al., 2013) has led to a growing emphasis on developing children's fundamental movement skills. The fundamental movement skills may be developed in a variety of ways and settings beyond formal education, including through outdoor active play (Johnstone, Hughes, Martin, & Reilly, 2018), and there is research suggesting that skill-based and planned active play, as well as free play can both lead to improved fundamental movement skills in children (Roach & Keats, 2018).

The variety of outdoor spaces and features at the Garden afford children with a number of opportunities to explore their movement and take beneficial risks within a safe environment. Systematic observations conducted for this study found that children were developing and practising a variety of movement skills throughout the Garden spaces. Additionally, the children were observed playing alone, as well as in groups, thus interacting with their peers and helping each other in their skill development, such as jumping from heights, crawling through the tunnel, navigating over the bridge, or climbing up to the slide.

The regular visits to the Garden undertaken by the special needs class were highly beneficial for their physical development as well as their sense of wellbeing and enjoyment of nature. Over time these visits helped to build their sense of confidence. They interacted more skilfully with the various activities and spaces, negotiated more constructively with the other visitors, and

showed a greater sense of agency about making such choices. In response, the adults caring for these children also became more confident, both in the children's ability to negotiate the experience constructively and in their own ability to care for them responsibly in the outdoor play space.

Previous research has found that ongoing programs with educational support produce the most consistent gains for children's development (Dowdell, Gray & Malone, 2011). Like the Bush School groups, the special needs class was supported initially by a Centennial Parklands educator who provided tailored activities and guidance for the class teacher to help her orient to nature play in the Garden. The benefits for the children accrued over time as a result of their regular weekly visits and the individualised support they were provided to enhance their learning.

Given that most visitors did not attend an education program at Centennial Parklands and visited relatively infrequently, the strength with which survey respondents endorsed the benefits of both the Garden and nature play underscores the accomplishment of the Garden design and innovation. However, while the Garden encourages free play and a level of risk-taking, it is nonetheless a constructed 'nature' space that is perhaps most effective in its response to the challenge of increasing urbanisation (Duhn, Malone & Tesar, 2017). Along with their appreciation of the natural play space some parents also expressed concern at the extent to which urbanisation had resulted in their children missing out on the kinds of free nature play opportunities that they themselves had experienced in childhood.

Despite a strong positive response to the Garden as a nature-oriented playground, only half the adults who responded to the survey identified an association between nature play in the Garden and their children's affiliation with nature. This suggests that many adult visitors oriented to the Garden first as a playground and only secondarily to the benefits of nature play, if at all.

Risk taking is highlighted by advocates of nature play as an important skill that children learn through free play in nature (Harris, 2015). Research shows that children develop enhanced risk assessment skills (Little, 2017) when they engage in play in unstructured outdoor spaces. Their understandings of and ability to predict capacities and limits with regard to speed, strength, reach and stability are enhanced and these predictive skills transfer into their capacity for decision making in other areas of their lives. The notion of 'wild play' (though not explicitly defined) seems to rely substantially on a combination of risk taking and free exploration.

Risk taking also needs to be balanced with safety. In a study by Norðdahl and Einarsdóttir (2015) children explained that they wanted to be able to explore and challenge themselves but also to feel safe. Knowing that there are boundaries to keep them safe, often including having an adult in the vicinity, enhanced children's confidence to challenge themselves to take risks. Similarly, in the photo-voice findings from this research we saw how having a peer with them helped children learn to face their 'scary fear'. It was also apparent that parents needed to learn to be comfortable with their children taking risks in nature play as part of the Bush School program. In this setting parents' sense of safety was provided by educators modelling nature play methods.

The adults surveyed held different ideas about where to draw the line between what is an acceptable risk and what is inherently unsafe. Some advocated for more challenging and risky play options, while others expressed concern about equipment they felt was too risky. Interestingly, the different views were not simply a function of their children's ages.

The negotiation of risk and safety was acknowledged by the education staff at Centennial Parklands as an important process for both children and parents to undertake. They saw the Garden as a training space that could prepare children, and their parents, to challenge themselves and move to greater preparedness for calculating and taking reasonable risks not only within the relative safety of the Garden but also in the less manicured wild nature outside its fence. The negotiation of this inherent tension presents a dilemma to risk averse parenting. The extent to which issues of safety were raised in the survey responses suggests that this tension is readily activated for parents visiting the Garden, particularly for those with young or otherwise vulnerable children.

## CONCLUSIONS AND RECOMMENDATIONS

After a little more than a year of operation it is clear that The Ian Potter Children's WILD PLAY Garden has been enthusiastically welcomed and embraced by families from across the metropolitan area and further afield. It is highly valued for its innovative playground design and for the invitation this offers to children and families to engage in nature-based play.

Research findings derived from both direct observations and survey data indicated significant tangible benefits for children's development and wellbeing.

Parents valued the space provided by the Garden for its aesthetics and the congeniality it offered to children and families alike. Many parents also recognised benefits of nature play for children's development.

The following specific comments and recommendations are arranged with reference to the aims set out for the Garden

### **Providing an inclusive outdoor learning environment for all children including culturally and linguistically diverse (CALD) and disadvantaged children, enabling a 'whole-of-life approach' to education.**

The Garden clearly has very wide appeal across all age groups and backgrounds. The research included a range of participants from CALD backgrounds, though not in high proportions. This may reflect usage of the Garden, or it may simply reflect that fewer people from CALD backgrounds chose to participate in the research. Although they were not able to take part in this study, the research team was aware of at least one community child welfare organisation that seeks to make the Garden accessible to children living in out of home care.

- In order to increase participation from diverse communities undertake an outreach strategy, involving provision of information in community languages, liaising with established local CALD community groups, and offering specific times for their members to visit the Garden.

### **Breaking down barriers to nature play, enhancing the chance of each and every child fulfilling his or her own educational potential.**

The emphasis on free play and an inviting environment is clearly providing opportunities for many children already. The regular visits by the special school children offer a wonderful example of how their particular needs are catered to, with the support of education staff instrumental in enabling their teachers to assist them.

Some children and families would benefit from additional guidance in order to get the most out of the opportunities the Garden provides.

- Employ dedicated nature play education staff during designated periods with the role of facilitating nature play and assisting parents and community members to engage with their children in active free play.
- Review signage relating to risk and supervision and consider providing further guidance to support parents to make informed judgments re appropriate risks for children of different ages and ability levels.

### **Making a positive contribution to improving child health and wellbeing and skills development**

There was clear evidence of improvement in child health and wellbeing and skills development, particularly for the special school students who attend the Garden regularly.

- Extend this contribution to health and wellbeing further by providing opportunities for adults to develop greater nature appreciation, to understand the benefits for children and learn how to support them – e.g. through providing workshops and/or special events.

### **Making a positive contribution to overcoming ‘nature deprivation’ by re-engaging children, through play-based experiences to create increased environmental awareness, empathy and action.**

There were many reports of children engaging more intimately and happily with nature through their experiences in the Garden. Further enhancements could be made by adding features to the Garden that include elements of nature exploration.

- Consider feasibility of suggestions in Tables 10 and 11.
- Look into ways of enhancing Garden features that relate to local native ecosystems.
- Offer activities that teach children how to care for natural spaces.
- Develop signage and literature to explain the purpose of Garden and provide advice about ways of enjoying it.

### **Build and strengthen community provision of a community gathering space where families, friends and people of all physical abilities and from all cultural and linguistic backgrounds can meet, relax and enjoy being immersed in an inclusive and safe natural environment.**

As noted in the body of the report, wide engagement with the Garden has led to its being to some extent the victim of its own success in relation to crowding. To improve the amenity as a community gathering space –

- Recommendations regarding shade, food availability, mosquitoes, etc. should be looked into and enacted.
- Consider extending opening hours to better accommodate families with young children.
- Offer open community days based around themes involving getting to know your community or otherwise coming together.
- To relieve congestion create more gardens like this in different suburbs, and/or enlarge the Garden.
- Staff suggestion: Every Bunnings should have a WILD PLAY Garden, preferably on the rooftop.



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