

2015

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Brendon P. Hyndman  
*Charles Darwin University*

Barbara Chancellor  
*RMIT University*

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## Publication details

Postprint of: Hyndman, B & Chancellor, B 2015, 'Engaging children in activities beyond the classroom walls: a social–ecological exploration of Australian primary school children's enjoyment of school play activities', *Journal of Playwork Practice*, vol. 2, no. 2, pp 117-141.

Published version available from:

<http://dx.doi.org/10.1332/205316215X14454218579212>

**Engaging children in activities beyond the classroom walls: A social-ecological exploration of Australian primary school children's enjoyment of school play activities**

**Brendon Hyndman<sup>1</sup> and Barbara Chancellor<sup>2</sup>**

*<sup>1</sup>International Graduate Centre of Education (IGCE), School of Education, Charles Darwin University, Darwin, Australia*

*<sup>2</sup>School of Education, RMIT University, Melbourne, Australia*

Brendon Hyndman<sup>1</sup> Charles Darwin University, Australia  
[Brendon.hyndman@cdu.edu.au](mailto:Brendon.hyndman@cdu.edu.au)

Barbara Chancellor<sup>2</sup> RMIT University, Australia  
[Barbara.chancellor@rmit.edu.au](mailto:Barbara.chancellor@rmit.edu.au)

**Abstract**

As children spend a significant amount of time in schools, it is vital that playwork practitioners develop an improved awareness relating to the influences on children's enjoyment of school play activities. The purpose of the present study was to assess children's enjoyment of school play activities beyond the classroom walls, including the type of play activities children enjoy and age and gender-specific enjoyment levels. Within the study, the Lunchtime Enjoyment of Activity and Play (LEAP) questionnaire was administered to 281 children aged 8-12-years-old attending three primary schools in regional Victoria, Australia. The LEAP questionnaire was used to measure Australian primary school children's enjoyment of school play activities. In order for age and gender-specific comparisons to be made for the LEAP questionnaire categories, a chi-square statistical test was conducted. The findings revealed that females had a significantly higher enjoyment compared to males for a range of school play activities including walking, using imagination, creating and making things, climbing, hiding, sliding, sitting, resting/relaxing, being active, tag games, changing play activity and playing with more natural features. Males had a significantly higher enjoyment compared to females for playing when it's hot and using sports equipment. Younger children had significantly higher enjoyment for using imagination, creating and making things, hiding, playing inside and changing play location. With understandings of the types of school play activities that are most enjoyable to children during school play, educators, playwork practitioners and school decision makers can employ the social-ecological model insight gained within the current study to guide future school-based planning and design.

**Key words:** Primary school, Recess, Physical Activity, Playgrounds, playwork practice

## **Introduction**

Schools provide an important setting to develop children's health, wellbeing and physical activity habits to ensure children are equipped with the lifelong skills to prevent the onset of 'inactivity inducing' future diseases (Kriemler et al., 2011; Hyndman, 2015a). Children from a host of countries are not meeting the recommended guidelines for physical activity participation via active classes (e.g. physical education; Trost and Van der Mars, 2010), emphasising the importance of engaging children in play activities beyond the school classroom (Hyndman et al., 2012). Research continues to emerge that suggests schools need to consider strategies beyond structured classroom agendas such as via school play activities to ensure students have the opportunity to meet national physical activity guidelines (Dobbins et al., 2013). In many schools, children can participate in hundreds of recess breaks within the school playground each year (e.g. morning recess, afternoon recess; Stratton, 2000) and play activities supply substantial opportunities for children to engage in cognitive, social and active play developmental opportunities (Bundy et al., 2009; Hyndman et al., 2014). As children's time allocation at school can exceed 30 hours each week (Dobbins et al., 2013), it is vital that an increased awareness is developed by teachers relating to the influences on children's engagement in school play activities beyond the school classroom (Hyndman, et al., 2012).

In addition to being a crucial period to develop children's participation in school play activities, active play in schools has been revealed as a prime developmental and learning avenue to supplement, complement and lead to enhanced student engagement with the formal school curriculum (Bundy et al., 2009; Hyndman et al., 2012). Governments across the world have evaluated how school-based play opportunities can develop children's developmental opportunities (Tranter and Malone, 2004). Teachers have also identified that active play activities within the school playground are not just a relief from key learning processes or to let off steam (Chancellor, 2013): they have the potential to be a significant form of learning (Hyndman et al., 2014). Teachers have reported a variety of physical, cognitive and social developments from children engaging in high quality active play within school playgrounds (Bundy et al., 2009; Hyndman et al., 2012). Research of the Asian education system revealed that when children are provided with frequent breaks across a school day, academic learning, performance, social competence and adjustment to school are all facilitated (Pelligrini and Bohn, p.117). With schools increasingly focused on the performance of children, and with Australian children being ranked annually for literacy and numeracy (Australian Curriculum and Assessment Reporting Agency, 2015), additional strategies to engage children beyond the classroom are important teacher considerations. However, there is a significant gap in the literature exploring children's enjoyment of school play activities.

Understanding of the aspects of school play activities children enjoy requires further investigation (Hyndman et al., 2014; Hyndman et al., 2015). Enjoyment stems from kinaesthetic experiences, the achievement of personal goals and has been defined as "a positive affective response to an experience that reflects feelings such as pleasure, liking, and fun" (p32, Scanlon and Lewthwaite, 1986). The positive association between enjoyment and behaviour is emphasised by the Self-Determination Theory (SDT; Lawman et al., 2011). Self-Determination Theory outlines that if children enjoy participating in a particular activity (e.g. intrinsic motivation from jumping activities) this will increase the likelihood of children maintaining participation in such an activity. Enjoyment has been suggested to mediate involvement and participation in both sporting activities (McCarthy et al., 2008) and physical

activities (Dishman et al., 2005; Moore et al., 2009; Motl et al., 2001). Other studies have also investigated the link between enjoyment and correlates of activity including self-determination (Ntoumanis, 2002), movement skill development (Okely, et al., 2001), task orientation (Boyd and Yin, 1996), self-efficacy (Rovniak et al., 2002), goal setting (Rovniak et al., 2002) and perceived physical competence (Boyd and Yin, 1996; Kriemler et al., 2011).

Mediators (e.g. mechanisms of change) of children's behaviour such as enjoyment have been identified as important to evaluate the effects of school-based activity interventions (Kriemler et al., 2011; Hyndman, 2015b). A lack of effective interventions targeting school children's activity participation could be due to a poor understanding of the mediators of behaviour change such as enjoyment (Baranowski and Jago, 2005). School play activities are a time when children have freedom to choose what they do and with whom they actively participate with (Hyndman, 2015). During school play activities, children have the potential to enjoy a sense of freedom, variability, unpredictability and open-endedness in the activities they engage in (Hyndman et al., 2014). While studies have commenced exploring the influences on children's enjoyment of school play activities (e.g. seasonal influences, intervention influences), there has been little information for playwork practitioners and educators relating to age and gender-specific influences on children's enjoyment of school play activities. In order for schools to provide school play opportunities where children are motivated to engage in a range of activities, information about children's enjoyment may shed light on their activity motivations (Moore et al., 2009). With this information, schools will be in a stronger position to plan their school environments with high affordances for engaging in school play activities (Hyndman, 2015b). In order to avoid assumptive interpretations by adults, this article focuses on children's own assessment of their levels of enjoyment of school play activities. Currently, many school environments for play activities are designed and implemented by adults (Hyndman et al., 2014). Identifying children's enjoyment of play activities within the school environment can be used by school leaders, educators and playwork practitioners to gain an awareness of and create environments conducive to enhancing children's health, wellbeing and activity levels (Hyndman and Lester, 2015). The purpose of the present study was to assess Australian primary school children's enjoyment of school play activities beyond the classroom walls, including the type of activities children enjoy and the extent of age and gender-specific enjoyment levels.

## **Methods**

Ethical approval for the study was obtained from the University of Ballarat Human Research Ethics Committee, the Department of Education and Early Childhood Development (DEECD) in Victoria and permission was gained from the school principal. Primary school children and their parents received a plain language statement outlining the research, along with a participant and parental consent form. Quantitative methods of data collection and analysis underpin this study and discussion of findings are immersed within a broad body of knowledge. By taking this approach, understandings from both qualitative and quantitative studies of children in the primary school playground are valued. This allows for a hybridity that encompasses findings from diverse fields of inquiry such as health, playwork, education, design and cultural studies and diverts the likelihood of assumptive thinking by adults investigating children's worlds.

Within the study, the Lunchtime Enjoyment of Activity and Play (LEAP; Hyndman et al., 2013) questionnaire was administered to 281 children aged 8-12 years old (response rate: 63.3%) attending three primary schools in regional Victoria, Australia (Males= 141; Females= 140; 8 year olds= 52; 9 year olds= 91; 10 year olds= 54; 11 year olds= 66; 12 year olds= 18). It has been revealed that 35 of 39 items within the LEAP questionnaire have reached an acceptable statistical level of test-retest reliability (Hyndman et al., 2013). In

addition, test-retest reliability results are acceptable for each social-ecological model component (0.44-0.60) and item categories (0.44-0.75; Hyndman et al., 2013). Face and content validity of items have been confirmed through review from multiple physical activity experts with questionnaire development experience that have ensured that multiple levels of school-based physical activities are represented and that the LEAP questionnaire's formatting is suitable for primary school children aged 8-12 years old (Hyndman et al., 2013). The administration of the LEAP Questionnaire was conducted during class time and took approximately ten minutes. The LEAP questionnaire was administered via guided completion, in which one of the investigators or teachers were present to provide insight as necessary and to ensure children completed all responses. Each of the primary school's Index of Community Socio-Educational Advantage (ICSEA) were '1065' (school 1; above average), '1105' (school 2; above average) and '976' (school 3; below average; ACARA, 2015). The LEAP questionnaire was used to measure children's enjoyment of school play activities beyond the classroom (Hyndman et al., 2013).

The LEAP questionnaire is a reliable, context-specific questionnaire consisting of 39 items, organised into social-ecological model levels of influence with components including: (1) intra-personal (individual), (2) inter-personal (social) and (3) physical environment and policy/organisation variables to identify the broader influences on children's enjoyment of school play activities (Salmon and King, 2010). Social-ecological models suggest that to understand children's play behaviour it is necessary to consider multiple factors; intra-personal, inter-personal, physical environment and policy/organisation (Salmon and King, 2010). Within the LEAP questionnaire, the intra-personal component includes six categories (20 items) examining children's enjoyment of play during school breaks (being active; playing at lunchtime; playing at recess; playground activities; tag games; playing outside) basic locomotion (walking; jogging; running), imaginative activities (using imagination; creating and making things), play-based movements (climbing; jumping; hiding; sliding; lifting/pushing), activity variations (changing where activities are played; changing what activities are played) and sedentary behaviour (sitting; resting). The inter-personal component consists of one category (two items) examining children's enjoyment of social play activities (playing with friends; talking to friends). The physical environment and policy/organisation component included six categories (17 items) examining children's enjoyment of playing with man-made items (playing with sporting equipment; using sport equipment; hard-surfaces; playing with fixed playground equipment; man made things such as playground/sporting equipment; playing with things that move at school; and home), natural items (grassy areas; trees/rocks/gardens), activity area size (amount of things; size of playground), warm conditions (playing when it's hot; playing in the sun), cool conditions (playing when it's cold; playing when it's wet) and activity within sheltered areas (playing inside; playing in the shade). All enjoyment items are rated on a five-point likert scale (1=very unhappy; 2=unhappy; 3=not sure; 4=happy; 5=very happy; Hyndman et al., 2013).

**Table 1. Sample LEAP questionnaire items applying a social-ecological model (Hyndman et al., 2013)**

<b>Social-ecological model level of influence</b>	<b>Sample questions rated on a five-point likert scale</b>
Intra-personal	Q32) How much do you enjoy creating and making things (e.g. sand castles, building blocks)?
Inter-personal	Q24) How much do you enjoy talking to friends?

Physical Environment/Policy	Q18) How much would you like to play with things that would move (e.g. car tyres, boxes, milk crates, buckets, hay bales, noodles) at school?
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### Data Analysis

All questionnaires were coded and data was entered into the Statistical Package for the Social Sciences (SPSS) version 22 data analysis program. Normality of the data was checked by conducting a range of descriptive analyses. Data cleaning involved checking any unusual scores or missing values against the original survey and errors were amended to the spreadsheet. There were no missing values identified. In order for gender (male/female) and age-specific (8-9 and 10-12 year old) comparisons to be made for children's levels of enjoyment of school play activities, a chi-square statistical test comparing proportions of enjoyment was conducted. Statistical significance was set at the  $p < 0.05$  level.

### Results

#### *Gender-specific intra-personal (Individual) level enjoyment of school play activities*

The highest self-reported intrapersonal level enjoyment for both males and females were for *being active* during play activities (91.8% and 96.1% happy/very happy respectively), *playing at lunchtime recess* (91.1% and 97.6% happy/very happy respectively), *playing at morning recess* (89.7% and 93.8% happy/very happy respectively), *climbing activities* (83.7% and 89.1% happy/very happy respectively) and *tag games* (90% and 87.6% happy/very happy respectively; Table 2). The lowest self-reported intrapersonal level enjoyment for females was for *sitting* (65.1% unhappy/very unhappy), *creating/making things* (62% unhappy/very unhappy), *using imagination* (66.7% unhappy/very unhappy) and *lifting/pushing* (69.5% unhappy/very unhappy; Table 2). In contrast, males' lowest self-reported intrapersonal level enjoyment included *walking* (53.3% unhappy/very unhappy), *resting/relaxing* (55.6% unhappy/very unhappy), *sitting* (55.6% unhappy/very unhappy) and *sliding* (63% unhappy/very unhappy; Table 2).

When comparing the intrapersonal level enjoyment between genders, there was a significantly higher enjoyment proportion (happy or very happy) for females compared to males for *being active* during play activities (96.1% compared to 91.8%,  $X^2 = 10.13$ ,  $p = 0.04$ ), *tag games* (87.6% compared to 80%,  $X^2 = 15.43$ ,  $p < 0.01$ ), *walking* (72.5% compared to 53.3%,  $X^2 = 15.37$ ,  $p = 0.01$ ), *using imagination* (66.7% compared to 50.4%,  $X^2 = 15.66$ ,  $p < 0.01$ ), *creating and making things* (62% compared to 54.8%,  $X^2 = 12.39$ ,  $p = 0.02$ ), *climbing* (89.1% compared to 83.7%,  $X^2 = 11.05$ ,  $p = 0.03$ ), *hiding* (79.5% compared to 72.6%,  $X^2 = 10.88$ ,  $p = 0.03$ ), *sliding* (78.2% compared to 63%,  $X^2 = 18.85$ ,  $p = 0.001$ ), *sitting* (73.4% compared to 55.6%,  $X^2 = 12.45$ ,  $p = 0.01$ ) and *resting/relaxing* (73.4% compared to 55.6%,  $X^2 = 13.96$ ,  $p = 0.01$ ; Table 2). There were no other significant intrapersonal level enjoyment differences between the genders (Table 2).

#### *Age-specific intra-personal (Individual) level enjoyment of school play activities*

The highest self-reported intrapersonal level enjoyment for both 8-9 year old and 10-12 year old children included *being active* during play activities (95% and 92.4% happy/very happy respectively), *playing at lunchtime recess* (92.5% and 96.1% respectively), *playing at*

*morning recess* (90.2% and 93.2% happy/very happy respectively), *tag games* (86.5% happy/very happy respectively), *climbing* (88.8% and 84% happy/very happy respectively), *playground activities* (87.1% and 78.1% happy/very happy respectively) and *hiding* (85.7% and 81% happy/very happy respectively; Table 3).

When comparing the intrapersonal level enjoyment between age groups, there was a significantly higher enjoyment proportion (happy or very happy) for 8-9 year olds compared to 10-12 year olds for *using imagination* (69.8% compared to 46.8%,  $X^2= 27.3$ ,  $p<0.001$ ), *creating and making things* (66.9% compared to 49.7%,  $X^2= 15.29$ ,  $p<0.01$ ) and *hiding* (85.7% compared to 73.3%,  $X^2= 12.15$ ,  $p=0.02$ ). There were no other significant intrapersonal level enjoyment differences between the age groups (Table 3).

#### *Gender and age-specific interpersonal (social) level enjoyment of school play activities*

The highest self-reported interpersonal level enjoyment for both males and females was for *playing with friends* (95.9% and 100% happy/very happy respectively) and *talking to friends* (81.5% and 88.2% happy/very happy respectively). Similarly, the highest interpersonal level enjoyment for both 8-9 year olds and 10-12 year old children included *playing with friends* (98.8% and 96.7% respectively) and *talking to friends* (82.4% and 87% respectively). There

**Table 2. Children’s gender-specific intra-personal and inter-personal level enjoyment of school play activities measured by the Lunchtime Enjoyment of Activity and Play (LEAP) questionnaire**

Social Ecological Model levels	At school, how much do you enjoy	Gender	VH %	H %	NS %	U %	VU %	X <sup>2</sup>	P value
Intra-personal (Individual) level	<b>School break activity</b>								
	Being active	Males Females	73.3 62.8	18.5 33.3	5.9 3.9	1.5 0.0	0.7 0.0	10.13	0.04*
	Playing at lunchtime recess	Males Females	65.9 70.5	25.2 27.1	7.4 2.3	1.5 0.0	0.0 0.0	5.67	0.13
	Playing at morning recess	Males Females	66.7 57.4	23.0 36.4	8.9 5.4	1.5 0.8	0.0 0.0	6.36	0.10
	Playground activities	Males Females	43.4 35.1	36.4 50.6	14.1 13.0	5.1 1.3	1.0 0.0	5.45	0.25
	Tag games (chasey) <sup>#</sup>	Males Females	64.4 55.0	15.6 32.6	16.3 7.0	1.5 3.9	2.2 1.6	15.43	<0.01*
	Playing outside	Males Females	67.7 62.0	15.8 20.2	9.8 8.5	3.0 7.0	3.8 2.3	3.65	0.46
	<b>Basic locomotion</b>								
	Walking <sup>#</sup>	Males Females	31.1 32.3	22.2 40.2	28.1 19.7	11.1 6.3	7.4 1.6	15.37	0.01*
	Jogging	Males Females	39.6 40.7	32.8 36.1	17.9 16.0	6.7 4.9	3.0 2.3	3.88	0.42
	Running/sprinting <sup>#</sup>	Males Females	57.8 51.2	23.0 29.5	9.6 12.4	5.2 3.1	4.4 3.9	2.80	0.59
	<b>Imaginative play</b>								
	Using your imagination	Males Females	27.9 38.9	22.5 27.8	20.2 22.2	11.6 7.1	17.8 4.0	15.66	<0.01*
	Creating/making things <sup>#</sup>	Males Females	33.3 34.9	21.5 27.1	16.3 25.6	16.3 7.8	12.6 4.7	12.39	0.02*
	<b>Play-based movements</b>								
	Climbing	Males Females	63.7 55.8	20.0 33.3	8.9 9.3	3.7 1.6	3.7 0.0	11.05	0.03*
	Jumping	Males Females	48.1 54.3	27.4 27.9	14.8 11.6	5.2 4.7	4.4 1.6	2.86	0.58
	Hiding	Males	56.3	16.3	16.3	7.4	3.7	10.88	0.03*



		Females	58.7	20.8	13.3	4.9	2.3		
	Sliding	Males	46.7	16.3	22.2	8.1	6.7	18.85	0.001
		Females	43.0	35.2	15.6	0.8	5.5		
	Lifting/ pushing <sup>#</sup>	Males	40.7	27.4	18.5	7.4	5.9	6.96	0.14
		Females	29.7	39.8	21.1	3.9	5.5		
	<b>Sedentary behavior</b>								
	Sitting	Males	34.1	21.5	19.3	13.3	11.9	12.45	0.01*
		Females	27.1	38.0	18.6	12.4	3.9		
	Resting/ relaxing	Males	35.6	20.0	20.7	12.6	11.1	13.96	0.01*
		Females	36.7	36.7	15.6	4.7	6.3		
<b>Inter-personal</b> (Social) level	<b>Social play</b>								
	Playing with friends	Males	84.7	11.2	2.0	2.0	0.0	5.24	0.16
		Females	94.7	5.3	0.0	0.0	0.0		
	Talking to friends	Males	50.4	31.1	14.8	3.0	0.7	3.12	0.54
		Females	52.0	36.2	10.2	1.6	0.0		

\*= Significant difference in enjoyment between 8-9 year olds and 10-12 year olds ( $p < 0.05$ ) based on a chi-square statistical test for comparing proportions;  $X^2$ = Chi-square value; LEAP= Lunchtime Enjoyment of Activity and Play (LEAP) questionnaire (Hyndman et al. 2013); VH/H= Very Happy/Happy; NS= Not Sure; VU/U= Very Unhappy/Unhappy.

**Table 3. Children’s age-specific intra-personal and inter-personal level enjoyment of school play activities measured by the Lunchtime Enjoyment of Activity and Play (LEAP) questionnaire**

Social Ecological Model levels	At school, how much do you enjoy	Age groups	VH %	H %	NS %	U %	VU %	X <sup>2</sup>	P value
Intra-personal (Individual) level	<b>School break activity</b>								
	Being active	8-9 year olds	67.7	27.8	3.8	0.0	0.8	4.21	0.38
		10-12 year olds	68.7	23.7	6.1	1.5	0.0		
	Playing at lunchtime recess	8-9 year olds	68.4	24.1	6.8	0.8	0.0	2.29	0.51
		10-12 year olds	67.9	28.2	3.1	0.8	0.0		
	Playing at morning recess	8-9 year olds	60.9	29.3	8.3	1.5	0.0	0.82	0.85
		10-12 year olds	63.4	29.8	6.1	0.8	0.0		
	Playground activities	8-9 year olds	47.1	40.0	9.4	3.5	0.0	5.55	0.24
		10-12 year olds	33.0	45.1	17.6	3.3	1.1		
	Tag games (chasey) <sup>#</sup>	8-9 year olds	63.2	23.3	10.5	2.3	0.8	2.87	0.58
		10-12 year olds	56.5	24.4	13.0	3.1	3.1		
	Playing outside	8-9 year olds	63.6	17.4	11.4	4.5	3.0	1.61	0.81
		10-12 year olds	66.2	18.5	6.9	5.4	3.1		
	<b>Basic locomotion</b>								
	Walking <sup>#</sup>	8-9 year olds	35.9	27.5	24.4	6.1	6.1	5.94	0.20
		10-12 year olds	27.5	34.4	23.7	11.5	3.1		
	Jogging	8-9 year olds	43.9	36.4	13.6	3.8	2.3	2.31	0.68
		10-12 year olds	22.1	18.3	6.8	6.1	2.3		
	Running/sprinting <sup>#</sup>	8-9 year olds	61.7	23.3	8.3	3.8	3.0	6.07	0.19
		10-12 year olds	47.3	29.0	13.7	4.6	5.3		
	<b>Imaginative play</b>								
	Using your imagination	8-9 year olds	41.9	27.9	22.5	3.1	4.7	27.30	<0.001*
		10-12 year olds	24.6	22.2	19.8	15.9	17.5		
Creating/making things <sup>#</sup>	8-9 year olds	42.1	24.8	17.3	6.0	9.8	15.29	<0.01*	
	10-12 year olds	26.0	23.7	24.4	18.3	7.6			
<b>Play-based movements</b>									
Climbing	8-9 year olds	61.7	27.1	8.3	2.3	0.8	2.38	0.67	
	10-12 year olds	58.0	26.0	9.9	3.1	3.1			
Jumping	8-9 year olds	55.6	21.1	14.3	6.0	3.0	6.15	0.19	
	10-12 year olds	46.6	34.4	12.2	3.8	3.1			
Hiding	8-9 year olds	68.4	17.3	10.5	3.0	0.8	12.15	0.02*	

		10-12 year olds	48.9	24.4	16.0	6.9	3.8		
	Sliding	8-9 year olds	48.5	22.7	17.4	6.1	5.3	3.48	0.48
		10-12 year olds	41.2	28.2	20.6	3.1	6.9		
	Lifting/ pushing <sup>#</sup>	8-9 year olds	41.7	28.0	20.5	4.5	5.3	6.08	0.19
		10-12 year olds	29.0	38.9	19.1	6.9	6.1		
	<b>Sedentary behavior</b>								
	Sitting	8-9 year olds	30.8	33.1	16.5	13.5	6.0	3.31	0.51
		10-12 year olds	30.5	26.0	21.4	12.2	9.9		
	Resting/ relaxing	8-9 year olds	42.4	23.5	15.2	9.1	9.8	6.75	0.15
		10-12 year olds	29.8	32.8	21.4	8.4	7.6		
<b>Inter-personal</b> (Social) level	<b>Social play</b>								
	Playing with friends	8-9 year olds	94.0	4.8	1.2	0.0	0.0	5.23	0.16
		10-12 year olds	84.3	12.4	1.1	2.2	0.0		
	Talking to friends	8-9 year olds	51.9	30.5	16.0	1.5	0.0	4.88	0.30
10-12 year olds		50.4	36.6	9.2	3.1	0.8			

\*= Significant difference in enjoyment between 8-9 year olds and 10-12 year olds ( $p < 0.05$ ) based on a chi-square statistical test for comparing proportions;  $X^2$ = Chi-square value; LEAP= Lunchtime Enjoyment of Activity and Play (LEAP) questionnaire (Hyndman et al. 2013); VH/H= Very Happy/Happy; NS= Not Sure; VU/U= Very Unhappy/Unhappy.

were no significant interpersonal level enjoyment differences between gender or age groups (Table 2 and 3).

#### *Gender-specific physical environment/policy level enjoyment of school play activities*

The highest self-reported physical environment/policy level enjoyment for both males and females were for *playing with sports equipment* (87.2% and 87.6% happy/very happy respectively), *playing on hard surfaces* (81.3% and 88.3% happy/very happy respectively), *more man-made facilities* (e.g. sports/playground facilities; 85.9% and 82.5% happy/very happy respectively), *using sports equipment* (85.2% and 80.6% happy/very happy respectively) and *playing on grass areas* (80.6% and 85.9% happy/very happy respectively; Table 4). The lowest self-reported physical environment/policy level enjoyment for males and females was for *playing when it's hot* (57.8% and 54.7% unhappy/very unhappy respectively), *playing when it's cold* (57.8% and 40.1% unhappy/very unhappy respectively), *playing when it's wet* (46.6% and 34.6% unhappy/very unhappy respectively) and *playing with playground equipment* (52.5% and 53.1% unhappy/very unhappy respectively; Table 4).

When comparing the physical environment/policy level enjoyment between genders, there was a significantly higher enjoyment proportion (happy or very happy) for females compared to males for *changing play activity* (78.9% compared to 63.5%,  $X^2= 13.47$ ,  $p=0.01$ ), *more natural things* (84.2% compared to 70.1%,  $X^2= 13.63$ ,  $p= 0.01$ ) and *playing with sports equipment* ( $X^2= 15.85$ ,  $p= <0.01$ ; Table 4). In contrast, males had a significantly higher enjoyment proportion (happy/very happy) compared to females for *using sports equipment* (85.2% compared to 80.6%,  $X^2= 12.04$ ,  $p=0.02$ ) and *playing when it's hot* (57.8% compared to 54.7%,  $X^2= 10.03$ ,  $p=0.03$ ; Table 4).

#### *Age-specific physical environment/policy level enjoyment of school play activities*

The highest self-reported physical environment/policy level enjoyment for both 8-9 year olds and 10-12 year olds were for *playing with sports equipment* (87.7% and 87% happy/very happy respectively), *playing on hard surfaces* (86.5% and 82.9% happy/very happy respectively), *more man made facilities* (e.g. sports/playground facilities; 81.8% and 86.7% happy/very happy respectively), *using sports equipment* (85.7% and 80.2% happy/very happy respectively) and *playing on grassy areas* (83.5% and 83.2% happy/very happy respectively; Table 5). The lowest self-reported physical environment/policy level enjoyment for both 8-9 year olds and 10-12 year olds were for *playing with playground equipment* (53.4% and 52.3% unhappy/very unhappy respectively), *playing when it's hot* (59.8% and 52.7% unhappy/very unhappy respectively), *playing when it's cold* (49.6% and 42% unhappy/very unhappy respectively) and *playing when it's wet* (43.9% and 37.7% unhappy/very unhappy respectively; Table 5).

Comparing the physical environment/policy level enjoyment between age groups, a significantly higher enjoyment proportion (happy or very happy) was revealed for 8-9 year olds in comparison to 10-12 year olds for *playing inside* (68.7% compared to 61.1%,  $X^2= 9.87$ ,  $p=0.04$ ) and *changing play location* ( $X^2= 11.87$ ,  $p=0.03$ ; Table 5).

**Table 4. Children’s gender-specific physical environment/policy level enjoyment of school play activities measured by the Lunchtime Enjoyment of Activity and Play (LEAP) questionnaire**

Social Ecological Model levels	How much do you enjoy	Gender	VH %	H %	NS %	U %	VU %	X <sup>2</sup>	P value
<b>Physical Environment/ Policy level</b>	<b>Man-made items</b>								
	Playing with sporting equipment	Male	61.4	25.8	3.8	3.8	4.5	15.85	<0.01*
		Female	51.2	36.4	10.9	10.9	0.0		
	Playing with playground equipment	Male	24.4	28.1	16.3	11.9	19.3	1.74	0.78
		Female	21.1	32.0	18.8	13.3	14.8		
	Playing on hard surfaces	Male	50.7	30.6	11.9	5.2	1.5	6.43	0.17
		Female	61.7	26.6	10.2	1.6	0.0		
	More man-made things such as playground equipment and sporting facilities	Male	56.0	29.9	6.0	4.5	3.7	6.24	0.18
		Female	50.0	32.5	12.7	4.0	0.8		
	Playing with things that would move at school	Male	40.6	30.1	15.8	9.0	4.5	4.97	0.29
		Female	50.0	27.3	16.4	3.9	2.3		
	Playing with things that would move at home	Male	47.0	22.4	17.2	6.7	6.7	9.32	0.054
		Female	45.3	32.0	18.0	0.8	3.9		
	Using sports equipment	Male	60.0	25.2	6.7	4.4	3.7	12.04	0.02*
		Female	48.8	31.8	15.5	3.9	0.0		
	<b>Natural items</b>								
	Playing on grassy areas	Male	50.0	30.6	10.4	4.5	4.5	4.43	0.35
		Female	48.4	37.5	9.4	3.9	0.8		
	More natural things such as trees, rocks and gardens in the playground	Male	37.3	32.8	20.1	5.2	4.5	13.63	0.01*
		Female	55.1	29.1	14.2	0.8	0.8		
<b>Play area size</b>									
The amount of things within your school playground	Male	29.6	37.0	23.7	8.1	1.5	6.21	0.18	
	Female	38.8	41.1	14.0	5.4	0.8			
The size of your school playground	Male	28.4	38.8	16.4	9.7	6.7	1.65	0.80	
	Female	25.2	35.4	22.0	9.4	7.9			
<b>Play within sheltered areas</b>									
Playing in the shade	Male	34.7	31.6	18.4	7.1	8.2	4.69	0.32	
	Female	28.6	44.2	18.2	6.5	2.6			
Playing inside	Male	32.8	30.6	20.9	5.2	10.4	4.41	0.35	

	Female	30.5	35.9	18.8	9.4	5.5			
<b>Warm conditions</b>									
Playing when it's hot	Male	26.7	31.1	25.9	8.1	8.1	10.83	0.03*	
	Female	15.6	39.1	21.1	18.0	6.3			
Playing in the sun	Male	68.4	19.4	9.2	1.0	2.0	3.77	0.44	
	Female	63.2	27.6	9.2	0.0	0.0			
<b>Cool conditions</b>									
Playing when it's cold	Male	29.6	20.7	23.0	13.3	13.3	5.55	0.24	
	Female	20.2	20.9	32.6	16.3	10.1			
Playing when it's wet	Male	28.1	18.5	14.1	20.0	19.3	18.03	0.09	
	Female	15.7	18.9	22.0	26.0	17.3			
<b>Play variation</b>									
Changing play location	Male	45.5	23.1	20.1	5.2	6.0	9.18	0.057	
	Female	46.5	35.4	12.6	3.9	1.6			
Changing play activity	Male	35.1	28.4	19.4	6.7	10.4	13.47	0.01*	
	Female	33.6	45.3	13.3	5.5	2.3			

\*= Significant difference in enjoyment between 8-9 year olds and 10-12 year olds ( $p < 0.05$ ) based on a chi-square statistical test for comparing proportions;  $X^2$ = Chi-square value; LEAP= Lunchtime Enjoyment of Activity and Play (LEAP) questionnaire (Hyndman et al. 2013); VH/H= Very Happy/Happy; NS= Not Sure; VU/U= Very Unhappy/Unhappy.

**Table 5. Children’s age-specific physical environment/policy level enjoyment of school play activities measured by the Lunchtime Enjoyment of Activity and Play (LEAP) questionnaire**

Social Ecological Model levels	How much do you enjoy	Age groups	VH %	H %	NS %	U %	VU %	X <sup>2</sup>	P value
<b>Physical Environment/ Policy level</b>	<b>Man-made items</b>								
	Playing with sporting equipment	8-9 year olds	56.9	30.8	7.7	1.5	3.1	2.74	0.60
		10-12 year olds	55.7	31.3	6.9	4.6	1.5		
	Playing with playground equipment	8-9 year olds	25.6	27.8	17.3	12.0	17.3	1.40	0.84
		10-12 year olds	20.0	32.3	17.7	13.1	16.9		
	Playing on hard surfaces	8-9 year olds	59.4	27.1	9.0	4.5	0.0	4.75	0.31
		10-12 year olds	52.7	30.2	13.2	2.3	1.6		
	More man-made things such as playground equipment and sporting facilities	8-9 year olds	52.3	29.5	9.8	5.3	3.0	1.70	0.79
		10-12 year olds	53.9	32.8	8.6	3.1	1.6		
	Playing with things that would move at school	8-9 year olds	51.5	28.8	9.8	6.8	3.0	8.99	0.06
		10-12 year olds	38.8	28.7	22.5	6.2	3.9		
	Playing with things that would move at home	8-9 year olds	52.6	27.1	14.3	2.3	3.8	7.07	0.13
		10-12 year olds	39.5	27.1	20.9	5.4	7.0		
	Using sports equipment	8-9 year olds	54.1	31.6	9.8	2.3	2.3	3.85	0.43
		10-12 year olds	55.0	25.2	12.2	6.1	1.5		
	<b>Natural items</b>								
	Playing on grassy areas	8-9 year olds	47.4	36.1	9.8	4.5	2.3	0.79	0.94
		10-12 year olds	49.2	34.0	9.9	4.2	2.7		
	More natural things such as trees, rocks and gardens in the playground	8-9 year olds	51.9	30.1	12.0	2.3	3.8	8.16	0.09
		10-12 year olds	39.8	32.0	22.7	3.9	1.6		
<b>Play area size</b>									
The amount of things within your school playground	8-9 year olds	33.8	40.6	18.0	6.8	0.8	0.64	0.96	
	10-12 year olds	34.4	37.4	19.8	6.9	1.5			
The size of your school playground	8-9 year olds	32.6	34.1	15.9	10.6	6.8	5.82	0.21	
	10-12 year olds	20.9	40.3	22.5	8.5	7.8			
<b>Play within sheltered areas</b>									
Playing in the shade	8-9 year olds	36.9	38.1	14.3	4.8	6.0	3.72	0.45	
	10-12 year olds	27.5	36.3	22.0	8.8	5.5			
Playing inside	8-9 year olds	38.2	30.5	13.7	8.4	9.2	9.87	0.04*	

		10-12 year olds	25.2	35.9	26.0	6.1	6.9		
<b>Warm conditions</b>									
Playing when it's hot	8-9 year olds	24.2	35.6	20.5	12.1	7.6	2.39	0.67	
	10-12 year olds	18.3	34.4	26.7	13.7	6.9			
Playing in the sun	8-9 year olds	69.6	19.3	9.6	0.0	1.2	2.25	0.69	
	10-12 year olds	62.6	26.4	8.8	1.1	1.1			
<b>Cool conditions</b>									
Playing when it's cold	8-9 year olds	24.8	24.8	21.8	16.5	12.0	5.94	0.20	
	10-12 year olds	25.2	16.8	33.6	13.0	11.5			
Playing when it's wet	8-9 year olds	24.2	19.7	13.6	22.7	19.7	3.70	0.45	
	10-12 year olds	20.0	17.7	22.3	23.1	16.9			
<b>Play variation</b>									
Changing play location	8-9 year olds	53.4	22.1	18.3	2.3	3.8	11.17	0.03*	
	10-12 year olds	38.5	36.2	14.6	6.9	3.8			
Changing play activity	8-9 year olds	41.7	31.8	15.2	4.5	6.8	7.19	0.13	
	10-12 year olds	26.9	41.5	17.7	7.7	6.2			

\*= Significant difference in enjoyment between 8-9 year olds and 10-12 year olds ( $p < 0.05$ ) based on a chi-square statistical test for comparing proportions;  $X^2$ = Chi-square value; LEAP= Lunchtime Enjoyment of Activity and Play (LEAP) questionnaire (Hyndman et al. 2013); VH/H= Very Happy/Happy; NS= Not Sure; VU/U= Very Unhappy/Unhappy.



## Discussion

The present study provides a detailed insight into the age and gender-specific influences on Australian primary school children's enjoyment of school play activities beyond the classroom. The findings from the study suggest that compared to males (higher enjoyment for using sports equipment and playing in hot conditions), females self-reported significantly higher enjoyment across a third of the play activity enjoyment items. Younger children (8-9 year olds) also had significantly higher enjoyment for using imagination, creating and making things, hiding, playing inside and changing play location in comparison to older primary school children (10-12 year olds). Individual schools and playwork practitioners wanting to improve school play opportunities for children may seek more detailed responses from their children relating to the results of this study.

Gender is the most common demographic variable that has been investigated as a correlate to children's play activity levels (Ridgers et al., 2012; Hyndman, 2013). Within the present study, the activities with the highest intrapersonal level enjoyment were similar for both genders, including enjoyment of morning recess, lunchtime recess, being active during breaks, tag games and climbing. The high levels of enjoyment could be attributed to children enjoying a break from the confines of the classroom walls to "let off steam" (Evans and Pellegrini, 1997; Chancellor 2013) and engaging in a variety of activity opportunities. The presence of monkey bars within the school setting is an important consideration for promoting climbing activities (Brown et al. 2009). Research has reported that children enjoy overcoming the risks associated with monkey bar climbing (e.g. elevated height), which has been described as an important facilitator for children's physical activity participation (Hyndman et al. 2012). Children's high enjoyment of tag games is also important as such activities have been reported to correlate with physical activity participation during recess breaks (Hyndman and Lester, 2015). Both genders had high enjoyment levels for the physical environment/policy influences including playing with sports equipment, playing on hard surfaces (e.g. courts), playing on man-made facilities (e.g. sporting facilities) and grass areas (e.g. ovals). Sporting-type activities are important for children to engage in high intensity physical activity (Rosenblum, Sachs and Schreuer, 2010). It has been revealed that participation in vigorous physical activity (VPA) is also important to meet national MVPA guidelines (Spinks et al., 2007). In addition, children's enjoyment of playing with sporting equipment and sporting facilities (in addition to playground facilities) has been reported to predict a higher amount of steps per minute accumulated by children during school lunchtime recess (Hyndman and Lester, 2015). Similarly, low levels of enjoyment were reported for both genders for the low or non-intensity activities of sitting (both genders), creating (females), using imagination (females) and walking (males). Low levels of enjoyment reported by both genders for weather influences (e.g. cold, wet, hot conditions) are consistent with previous findings (Hyndman et al., 2013). More comfortable weather conditions in Autumn have been revealed as when enjoyment is highest for Australian children (Hyndman and Lester, 2015). Therefore, the use of regular school breaks, higher intensity activities and protecting activities from weather influences could inform school decision-makers and playwork professionals to enhance children's enjoyment and physical activity participation during recess breaks.

~~A major review of the intra-personal (individual) correlates of children's school play activity levels between January 1990 and April 2011 revealed that being male correlated with higher school play activity participation across 31 studies (Ridgers et al., 2012). This finding of males being more active than females supports previous literature reviews of pre-school (Hinkley et al., 2008), childhood (Sallis et al., 2000) and adolescence (Van Der Horst et al., 2007). Contrasting previous studies that report that males participate in higher levels of active~~

play than females in pre-school (Hinkley et al., 2008), childhood (Sallis et al., 2000; Ridgers et al., 2012) and adolescence (Van Der Horst et al., 2007). Yet findings within the present study reveal that Australian primary school females possessed a significantly higher level of enjoyment for one third of school play activity items. Females had significantly higher enjoyment compared to males for including walking, using imagination, creating and making things, climbing, hiding, sliding, sitting, resting/relaxing, being active, tag games, changing play activity and playing with more natural features. Higher female enjoyment has also been previously reported across 10/13 school play enjoyment categories (Hyndman et al., 2013). Many of the activities with higher enjoyment for females within the present study were lower intensity or less competitive/sport structured activities. This reflects previous research that show suggests that educators can engage girls females during recess breaks via the creative, less competitive unstructured and less competitive play opportunities facilitated by introducing ‘movable equipment’ (Hyndman, Benson and Telford 2014) and natural features (Dyment, Bell and Lucas, 2009). Reflecting females’ higher enjoyment levels in the present study, the implementation of movable equipment and natural features has been associated with developing children’s use of imagination, creativity, play skills (climbing, hiding), changing play locations and engaging with nature (Hyndman, Benson and Telford, 2014; Dyment, Bell and Lucas, 2009). The implementation of such school playground interventions to encourage unstructured play activity options for females is therefore an important consideration for educators, playwork practitioners and school decision makers (Hyndman, 2015). As it has been reported that females prefer engaging in social behaviour during school recess (Roberts et al. 2012), it is possible that a higher enjoyment of the lower intensity levels of walking could be due to potential social opportunities. Tag games also require social interaction the social interaction associated with playing tag games with others could have resulted in higher enjoyment levels for females. The higher female enjoyment levels for changing play location could also be attributed to the spontaneous nature of active play and the competitive sports activities (e.g. winning and losing) in which males can be pressured to play (Rosenblum, Sachs and Schreuer, 2010). It is unclear why males had significantly higher enjoyment for playing in hot conditions. The present study provides insight for teachers, educational leaders, designers, researchers and play professionals on potential activities to engage females in physical activity during recess breaks, an important consideration worldwide (Ridgers et al. 2012).

Similar to previous investigations (Hyndman et al., 2013; Hyndman and Lester, 2015; Hyndman, Chancellor and Lester, 2015), the highest level of enjoyment was identified for social play activities in the present study. It is suggested that females often view school play activity periods as an opportunity to socialise (Pellegrini and Holmes, 2006), therefore promoting school play activities in which females can be social and physically active should be a high priority. Slukin (1981, p.11) found that older females during school play activities frequently mix with younger children, whereas older males do not. Females make friends more easily across age barriers than males, yet there were no significant differences in social enjoyment between gender within the present study. As suggested earlier, males more frequently engage in all forms of school-based activities compared to females (Smith, 2010, p.13) and it has been reported that when males are put into a context such as school play activities, predictable and robust gender differences often can be observed (Pellegrini et al., 2004, p.117). Rough and tumble/play fighting is a common form of male peer interaction throughout the school years, peaking at 7 – 11 year olds (10% of play choices) and declining in 11-13 year olds (5% of play choices; Smith, 2010, p.105). However, when rough and tumble and play fighting is observed by teachers during school play activities, it is often stopped (Chancellor, 2013). Teacher often prevent the physical challenges and risks associated with rough and tumble activities which can prevent the emerging cognitive, social

and physical benefits of children overcoming risks during school play activities (Wyver, 2010). Maccoby (2002) found that during school play activities, children occasionally engage with mixed-gender groups, but increasingly, as they move from four years old to 12 years old children spend a large portion of time exclusively with others of their own gender (p.55). Children have been revealed to rarely play in a mixed-gender dyad or in a larger group in which no other children of their own gender are involved (Maccoby, 2002, p.55). The best friendships during primary school are often weighted towards the same gender. Further research is warranted into the participation of social school play activities.

Within the present study younger primary school children had significantly higher enjoyment compared to older children for creating and making things, using imagination, hiding, playing inside and changing play location. Such findings suggest that over time primary school children could have a reduced interest in play exploration and development. It is possible that older children have formed more 'routine play' habits and are less likely to enjoy changing, modifying and creatively developing school play activities. Older primary school children have spent many years in the same playground, therefore to stimulate older children's interest, it is likely that providing open-ended materials they can manipulate could result in increased engagement and imaginative play (Hyndman et al., 2014; Hyndman and Telford, 2015). Older primary school children have been reported to participate in a higher proportion of sedentary behaviour or light intensity school recess break activities than younger children (Lopes et al., 2006). Findings from a 12-month intervention revealed that an increased age had a negative association with children's intensity of school play activities (Ridgers et al., 2007). Yet school play activities of older primary school children have also been revealed to increase when loose natural materials are available during school play activities (Chancellor, 2013). Adventure playground activities are suggested to engage older primary school children and research suggests older children can be more active when provided with access to structures that can be manipulated and not permanently configured (Jambor and Van Gils, 2007). The influence of themed weekly activities (e.g. a fitness circuit week, obstacle course week, frisbee week) have also had a positive impact on older primary school children's school play activity levels compared to younger children (Stellino et al., 2010). With older children often less interested in imaginative play than younger children, further resources must be considered to stimulate older children's imagination (Chancellor, 2011; Hyndman et al., 2014). It is important that playwork practitioners and educators are aware of the influences on primary school children's enjoyment, as it has been reported that there is an environmental disconnect between primary and secondary school that may be contributing to a decline in school play activity as children reach secondary school (Brady, 2004; Dollman et al., 2005; Pate et al., 2007). The lack of connection from primary to secondary school environments for school play activities (Haug et al., 2008) could be counteracted if playwork practitioners and educators are aware of the areas of the specific play activities that are influenced by age and gender. The potential of implementing more resources throughout a school year (Hyndman, Chancellor and Lester, 2015) could therefore be considered by school decision makers, playwork practitioners, teachers and researchers to stimulate the interests of older primary children in school play activities.

Until recent decades, previous research had not investigated the context and broader determinants within which health behaviour occurs, rather focusing on the individual influences on physical activity behaviour (Stevenson and Burke, 1992; Stokols, 1996). These broader influences on health behaviour are linked to the social-ecological model of human behaviour, which emphasises a need for a 'person-environment' fit (Stokols, 1996), implying that there is an association between the intra-personal (individual) level, inter-personal (social) environment level, physical environment level and policy level influences. Many health behaviour models do not show the interactions between the environmental factors and

can miss vitally important influences on children's school play activities. Knowledge of these multiple influences identified in the present study via the LEAP questionnaire are important to guide future school-based play interventions. The present study provides insight for playwork practitioners, educators and researchers of the multiple influences on children's enjoyment of school-based play activities beyond the classroom. Playwork practitioners can use the results of this study to consider tailoring school play environments to ensure that age and gender-specific enjoyment of school play activities are accounted for. Attempts to modify play behaviour at a single level on its own (e.g. social activities) are often resisted by other environmental levels of influence (Salmon and King, 2010). There are many factors within the environment that can conspire against changes that are applied addressing a single environmental level (Salmon and King, 2010). Therefore, successful play activity programs must not only modify an individual's play participation, but also the multiple level environmental context (e.g. evaluated via the LEAP questionnaire) in which play activities are taking place (Salmon and King, 2010).

Strengths of the study include the use of reliable self-report instruments to measure the age and gender-specific influences on children's enjoyment of school play activities. The study also included a large sample size across three primary schools that surpassed the power analysis threshold of a previous school play activities study (Hyndman et al., 2013). Importantly, the study provides key insight into age and gender-specific influences on children's enjoyment of school play activities that can be used by practitioners in the future. However, it should be noted that further versions and administration of the LEAP questionnaire could consider school play activities and behaviours such as taking risks, swinging, spinning, activities at different speeds, different heights and rough and tumble types of recess break activities. It is also possible that the completion of 39 items could also have been burdensome for some children, yet no negative effects were identified during the administration or within the results of the study. Additionally, the LEAP questionnaire provided extensive detail of the multi-level Social-Ecological Model influences on children's enjoyment of a broad range of school play activities.

As adults are the main decision makers or 'gate-keepers' to school playground improvements for school play activities (Chancellor and Cevher-Kalburan, 2014; Hyndman et al., 2012), the findings from this study could be used to inform school decision makers, playwork practitioners, teachers and researchers when purchasing facilities for school play activities. Understanding the age and gender-specific influences on children's enjoyment may also improve pre-service and in-service teachers' knowledge of the hidden curriculum of school play activities. It is important to improve educators' understanding of the safety influences within school play activities as educators are the 'gate-keepers' to school playground planning. As school play activity participation has been linked to cognitive and academic improvements, it is worthwhile for schools wishing to improve children's academic performances by looking beyond the walls of the classroom as a place of possibilities. By providing regular school play activities in the school day, the opportunities for children's development dramatically increases.

## **Conclusion**

In summary, this study revealed that Australian primary school children's enjoyment of school play activities declines with age. The findings revealed that females had a significantly higher enjoyment compared to males for a range of school play activities including walking, using imagination, creating and making things, climbing, hiding, sliding, sitting, resting/relaxing, being active, tag games, changing play activity and playing with more natural features. Males had a significantly higher enjoyment compared to females for playing

when it's hot and using sports equipment. Younger children had significantly higher enjoyment for using imagination, creating and making things, hiding, playing inside and changing play location. With understandings of the types of school play activities that are most enjoyable to Australian primary school children, educators, playwork practitioners and school decision makers can employ the social-ecological model insight of children's gender and age-specific enjoyment to guide future school-based play activity planning and design. Identifying what play activities are most enjoyable to children during play activities can allow schools to tailor activities in order to promote a student population with improved levels of health, wellbeing and academic performance improvements.

## Acknowledgements

The three primary schools and the children must be thanked for participating in the Australian primary school enjoyment project. Amanda Telford and Amanda Benson are acknowledged for their input into structuring the data collection.

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