

This article was downloaded by: [Swets Content Distribution]

On: 7 June 2011

Access details: Access Details: [subscription number 936475023]

Publisher Routledge

Informa Ltd Registered in England and Wales Registered Number: 1072954 Registered office: Mortimer House, 37-41 Mortimer Street, London W1T 3JH, UK



European Early Childhood Education Research Journal

Publication details, including instructions for authors and subscription information:

<http://www.informaworld.com/smpp/title~content=t776628938>

Risk, challenge and safety: implications for play quality and playground design

Helen Little^a; David Eager^b

^a Macquarie University, Sydney, Australia ^b University of Technology, Sydney, Australia

Online publication date: 13 December 2010

To cite this Article Little, Helen and Eager, David(2010) 'Risk, challenge and safety: implications for play quality and playground design', European Early Childhood Education Research Journal, 18: 4, 497 — 513

To link to this Article: DOI: 10.1080/1350293X.2010.525949

URL: <http://dx.doi.org/10.1080/1350293X.2010.525949>

PLEASE SCROLL DOWN FOR ARTICLE

Full terms and conditions of use: <http://www.informaworld.com/terms-and-conditions-of-access.pdf>

This article may be used for research, teaching and private study purposes. Any substantial or systematic reproduction, re-distribution, re-selling, loan or sub-licensing, systematic supply or distribution in any form to anyone is expressly forbidden.

The publisher does not give any warranty express or implied or make any representation that the contents will be complete or accurate or up to date. The accuracy of any instructions, formulae and drug doses should be independently verified with primary sources. The publisher shall not be liable for any loss, actions, claims, proceedings, demand or costs or damages whatsoever or howsoever caused arising directly or indirectly in connection with or arising out of the use of this material.

Risk, challenge and safety: implications for play quality and playground design

Helen Little^{a*} and David Eager^b

^aMacquarie University, Sydney, Australia; ^bUniversity of Technology, Sydney, Australia

ABSTRACT: In many countries playground design is driven more by safety than developmental benefits. As risk minimisation strategies become more stringent, many researchers and practitioners are questioning whether young children are able to take sufficient risks in play in order for their play experiences to be interesting and developmentally challenging. This study examined the outdoor play choices and risk-taking behaviour of 38 children (25 boys, 13 girls) aged between 48 and 64 months from Sydney, Australia. Semi-structured interviews examined children's play preferences and playground equipment usage. Observations of play explored engagement in risk-taking behaviour. Selection of equipment indicated a strong preference for challenge and excitement. However, the dominant observed play behaviours involved little risk suggesting equipment at these parks provided few opportunities to practice mastery of skills already in their behavioural repertoire, learning new skills or building on current capabilities. The findings have implications for play provision and playground design.

RÉSUMÉ: Dans de nombreux pays, la sécurité préside davantage à la conception des cours de récréation que la préoccupation du développement des enfants. Tandis qu'on observe une inflation des stratégies de réduction des risques, un grand nombre de chercheurs et de professionnels se demandent si les jeunes enfants sont capables de prendre suffisamment de risques dans leurs jeux afin de rendre ces expériences ludiques intéressantes et porteuses de défis sur le plan du développement. Cet article porte sur les choix de jeux de plein air et les comportements de prise de risque de 38 enfants (25 garçons, 13 filles) âgés de 48 à 64 mois à Sydney, en Australie. Nous avons étudié, à l'aide d'entretiens semi-directifs, les préférences ludiques des enfants et leur utilisation des équipements de cours de récréation. Nous avons eu recours à des observations de jeux pour investiguer leur implication dans des conduits de prises de risques. Certains équipements sont préférés pour leurs attraits et défis. Pourtant, les conduites de jeu dominantes présentent peu de prise de risques, ce qui laisse à penser que les équipements offrent peu d'occasion de maîtriser les habiletés déjà acquises, d'en acquérir de nouvelles ou d'en construire à partir des compétences présentes. Les résultats ont des implications quant à l'offre ludique et à la conception des cours de récréation.

ZUSAMMENFASSUNG: In vielen Ländern ist die Anlage eines Freigeländes mehr zugunsten von Sicherheit als von Entwicklung bestimmt. Da Strategien zur Minimierung von Risiken zwingender werden, wird seitens der Forschung sowie der Praxis vielfach die Frage gestellt, ob junge Kinder genügend Risiken in einer Weise eingehen können, dass ihre Spielerfahrungen sowohl interessant als auch herausfordernd für sie sind. Diese Studie untersuchte die Auswahlmöglichkeiten

*Corresponding author. Email: helen.little@mq.edu.au

des Spielens im Freien sowie Risiken eingehendes Verhalten von 38 Kindern (15 Jungen, 13 Mädchen) im Alter von 48 und 64 Monaten in Sydney, Australien. Mit halbstrukturierten Interviews wurden die Spielpräferenzen der Kinder und die Nutzung der Ausstattung des Freigeländes untersucht. Mit Beobachtungen wurde das Engagement in Risiken eingehendem Verhalten beim Spielen exploriert. Die Auswahl der Ausstattung zeigte eine starke Präferenz für Herausforderung und Aufregung. In die dominanten Spielverhaltensweisen, die beobachtet wurden, wurde jedoch Ausstattung dieser Parks einbezogen, die wenig Risiken anbot und damit wenig Gelegenheiten, (1) die Beherrschung von Fertigkeiten zu zeigen, die bereits im Verhaltensrepertoire der Kinder vorhanden waren, (2) neue Fertigkeiten zu erlernen oder (3) auf vorhandenen Fertigkeiten aufzubauen. Die Ergebnisse haben Implikationen für Spielangebote und die Planung von Spielplätzen.

RESUMEN: En muchos países el diseño de los parques de juegos es impulsado por la seguridad, más que por las ventajas para el desarrollo. En la medida que las estrategias para minimizar los riesgos son más estrictas, muchos investigadores y prácticos cuestionan si los niños son capaces de arriesgar lo suficiente en sus juegos para que estos sean interesantes y desafiantes para el desarrollo. El estudio examina las conductas riesgosas y la elección de juegos al aire libre de 38 niños (25 niños y 13 niñas) de 48 a 64 meses de edad, de Sidney, Australia. Entrevistas semi-estructuradas examinaron las preferencias de juego de los niños y el equipaje usado. Observaciones de juegos exploraron el involucramiento en conductas riesgosas. Elección de equipajes indicaban mayores preferencias por desafíos y excitación. Sin embargo, las conductas de juegos dominantes observadas envolvían pocos riesgos, sugiriendo que el equipamiento de esos parques proporcionaban pocas oportunidades de practicar el dominio de habilidades de sus repertorios conductuales, aprendiendo nuevas habilidades o desarrollando capacidades ya existentes. Los resultados tienen implicaciones para el diseño y suministro de parques de juegos.

Keywords: child development; early childhood; outdoor play; playgrounds; playground equipment; risk-taking; safety

Introduction

Outdoor play is a natural and important context for all aspects of children's physical, cognitive, social and emotional development (Clements 2004; Lester and Russell 2008). It is also a significant context in which children develop the ability to perceive and appraise risks as they learn to avoid injury whilst exploring their environment and learning what their bodies are capable of. Child development and play quality is enhanced when the environment allows children to safely explore their surroundings, experiment, try new things, accept challenges and take risks. Ideally, the playspace should contain a diversity of physical, social, and intellectual play elements as well as opportunities to engage with the natural environment. Despite this acknowledgement of the importance of outdoor play, there has been a reduction in play facilities and opportunities for free play in recent years (Waller 2006). There is mounting concern that many western societies are becoming increasingly risk averse with the resultant culture of fear (Gill 2007; Lester and Russell 2008; Madge and Barker 2007) heralding a growing trend towards over-protective safety measures. Parental safety concerns have resulted in greater restrictions being placed on children's independent activities and the growth of adult controlled, structured play spaces and the institutionalisation of childhood (Lester and Russell 2008; Valentine and McKendrick 1997; Waller 2006). In particular, there is a concern that as risk minimisation strategies become

more stringent, play spaces are becoming boring and sterile as risk and challenge are reduced or removed to avoid the possibility of even minor injuries for fear of litigation (Department for Culture, Media and Sport [DCMS] 2004). This risk aversion stems from the perspective that risk is something negative and therefore must be avoided (Furedi 2001). From this negative perspective an error in logic occurs whereby there is a belief that risk and safety cannot co-exist. But the belief that risk-taking can be beneficial for children's well-being does not mean that we become complacent about safety issues but rather that we need to draw a distinction between risk and hazard to provide opportunities for healthy, well-managed risk-taking.

Problems with defining risk

The issue that becomes apparent from these differing perspectives is the difficulties in defining risk and risk-taking. Madge and Barker (2007) highlight the complexities of the concept of risk as it encompasses 'an endless spectrum of behaviours and activities' (8) which are socially constructed varying from one context to another and both within and across cultures.

The term risk often conveys a negative connotation and definitions of risk frequently adopt a very narrow viewpoint. Within the developmental psychology literature, risk-taking is usually defined as the engagement in behaviours that are associated with some probability of negative outcomes (Boyer 2006). However, the assessment of risk is actually on a continuum that can be both positive and negative. Risk is managed through finding a risk level that is appropriate and acceptable (Mitchell, Cavanagh, and Eager 2006). For example, in engineering risk management is proactive rather than reactive, the design process ensures surprises are reduced and negative consequences associated with undesirable events are minimised, and more importantly positive risk-taking encouraged where time, cost, and/or a technical advantage is possible (Walmsley, Bagia, and Eager 2010). Risk-taking can, and does, result in positive outcomes. Being prepared to take a risk is fundamental to human learning as we endeavour to develop new skills, try new behaviours, develop new technology, and abandon the familiar to explore what we know less well. For children this is especially important as they try new activities and test their limits in their quest to become fully functioning, competent persons (Greenfield 2004; Stine 1997; Tovey 2007).

If we accept that the outcomes of risk-taking may be positive or negative, a broader definition of risk is required. Hence, risk is perhaps better defined as situations in which we are required to make choices among alternative courses of action where the outcome is unknown. Such situations often require us to weigh up the benefits against possible undesirable consequences as well as the likelihood of success or failure (Clifford 1991; Kopfsstein 1973; Rosenbloom 2003). When considered from this perspective risk is not necessarily a danger that needs to be avoided, but rather something that needs to be managed (Ball, Gill, and Spiegel 2008; Christensen and Mikkelsen 2008). For the purpose of this paper the term risk is used to encompass situations where the outcome is uncertain regardless of whether that outcome is predominately positive or negative whereas the term hazard is used to refer to situations in which there is a source of harm that carries with it a high probability of serious injury or death. These situations may be obvious, hidden, imperceptible or even unknown. It is the elimination of these hazards that contributes to environments where children are safe to explore risk and learn (Lester and Russell 2008; Tovey 2007).

Understanding risky play

Play, by its very nature, involves uncertainty, unpredictability, novelty, and flexibility, with a focus on the process rather than the result (Caillois 1962; Lester and Russell 2008) and a certain element of risk comes with this unpredictable and unstructured behaviour. The learning potential of risky play has long been acknowledged (Henniger 1994; Jambor 1986; Stine 1997). Furthermore there is often a desire for the sensations of fear and exhilaration that accompany risky activities (Zuckerman and Kuhlman 1994).

Recent research has begun to focus on risk-taking as an integral part of children's play (see Sandseter 2007; Stephenson 2003; Waters and Begley 2007). In general, risky play might be defined as play that provides opportunities for challenge, testing limits, exploring boundaries and learning about risk (Ball 2002; Little and Wyver 2008). Recent studies have identified the characteristics of risky play. Greenfield (2004) asked 4-year-old children to convey their feelings and views about the outdoor playground. Favoured areas were the bikes, swings and 'zoom slide' which had common features – 'risk, speed, excitement, thrills, uncertainty and challenge' (4). Similarly, Stephenson (2003) identified elements of 4-year-old children's play that were associated with risk-taking as: 'attempting something never done before, feeling on the borderline of "out of control" often because of height or speed, and overcoming fear' (36). Children were noted to appear acutely aware of their own skill level and competence. The aim of this type of play was to test their own limits and display their physical skills.

The findings of Stephenson (2003) and Greenfield (2004) were further extended by Sandseter (2007) in research conducted in Norwegian pre-schools. From her observations of 3- to 5-year-old children, Sandseter identified six categories of risky play, namely: height, speed, and rough and tumble play, along with dangerous tools that could cause injury, dangerous physical elements where children could fall, and secluded play where children could 'disappear or get lost'. A common theme apparent from both observations of the children's play and interview responses was the excitement and exhilaration experienced by the children and their obvious desire to seek out such experiences despite their acknowledgment that these evoked feelings of fear or could result in injury (Sandseter 2007). Overcoming fear and feeling 'out of control' was a significant element of the play. These descriptions of risky play correspond with what Caillois (1962) refers to as *ilinx* or games which appear to focus on the pursuit of vertigo and the sensation that comes with that momentary perceptual instability. According to Caillois, this sensation is often sought for its own sake.

These studies (Greenfield 2004; Sandseter 2007; Stephenson 2003; Waters and Begley 2007) suggest that what constitutes risky play is fairly universal but how risky play is viewed as either acceptable or unacceptable is socially constructed and varies across contexts (Tovey 2007). Furthermore, there are great variations in the level of risk different individuals are prepared to face and some individuals may be predisposed to greater engagement in risk-taking behaviour.

Risk-taking and unintentional injury

Whilst the literature reviewed in the previous section identifies risk-taking as an integral component of children's play, it would be remiss to not consider the negative outcomes of risk-taking behaviour. A considerable body of research has

examined factors that may predispose some individuals to higher levels of risk-taking thus exposing them to greater injury-risk. Individual differences in risk-taking behaviour have been examined in an effort to explain unintentional injuries during childhood. This line of research has examined factors at the individual level such as age, gender, temperament and sensation seeking (DiLillo, Potts, and Himes 1998; Ginsberg and Miller 1982; Hillier and Morrongiello 1998; Plumert and Schwebel 1997), parent/family factors including parent socialisation practices (Kindleberger Hagan and Kuebli 2007; Morrongiello and Dawber 1999, 2000; Morrongiello and Hogg 2004), parenting style (Morrongiello et al. 2006) and sibling effects (Morrongiello and Bradley 1997), and social-situational influences such as oral persuasion, and observation of peer behaviour (Morrongiello and Lasenby-Lessard 2007).

Risk, hazards, safety and playground standards

Playgrounds represent a significant context for outdoor play and child development as they are specifically designed for children to explore their surroundings and expand their movement capabilities in an exciting and enjoyable environment. To achieve this aim, playground equipment needs to offer a variety of play experiences to cater for children of diverse abilities and interests. They need to offer graded challenges so that there is potential for the neophyte as well as the practiced to be engaged and to push their limits. Children should not be confronted with hidden hazards (e.g., entrapment or strangulation hazards related to poor equipment design) but rather they should feel they can make decisions about activities based on their perceptions of their own capabilities.

The Royal Society for the Prevention of Accidents (RoSPA), the largest play safety organisation in the world, has as the motto 'as safe as necessary NOT as safe as possible' (RoSPA, nd). On the surface this motto might appear contrary to their name. Astutely RoSPA recognised decades ago that accidents can and will continue to occur and what is important is that the risk is managed and the hazards are eliminated through engineering means. This is the purpose of the playground safety standards around the world.

The playground equipment and playground surfacing standards are written specifically to eliminate known hazards. They rely upon on extensive evidence-based research built on a foundation of decades of data compiled from childhood injury and mortality statistics from around the world. The standards imbed hazard removal as a fundamental principle and it is for this reason that all playground equipment and playground surfacing must be site checked to ensure that they comply with the relevant local playground standard (European Committee for Standardisation 2008; Standards Australia 2004). Compliance with the standards does not mean the playground cannot be exciting and challenging. The challenge really is for the playground designer to work within the constraints of the standards and design in the fun as they engineer out the hazards. The aim is to provide a perception of risk as the child sees it; if the child sees scary and challenging and there are no hazards the designer has done a good job. Playground standards ensure that hazards are engineered out. They do this in a number ways. For example, falling from equipment is a significant hazard, and one which in most cases is obvious to the child. Falls from playground equipment are reported as the most common cause of hospitalised injury associated with playgrounds (Helps and Pointer 2006). The

standards (AS 4685:2004; EN 1176.1:2008) remove the hazard of falling by limiting the maximum possible fall height and protecting the user by installing an impact attenuating surface within the equipment fall zone. Contrary to popular belief the standards do not limit the height of the equipment. Provided the equipment design prevents the child from falling from a height above 2.5m (AS 4685:2004) or 3.0m in the EU (EN 1176.1:2008), the height of the equipment is unlimited. Impact attenuating surfacing is also required to lessen the impact and potential for serious injury (Standards Australia 1996).

The current version of the European Playground Equipment Standard recognises risk by making the following statement:

Respecting the characteristics of children's play and the way children benefit from playing on the playground with regard to development, children need to learn to cope with risk and this may lead to bumps and bruises and even occasionally a broken limb. The aim of this standard is first and foremost to prevent accidents with a disabling or fatal consequence, and secondly to lessen serious consequences caused by the occasional mishap that inevitably will occur in children's pursuit of expanding their level of competence, be it socially, intellectually or physically. (European Committee for Standardisation 2008)

Present study

The literature reviewed thus far supports the learning and developmental benefits of risky play, however, there has been limited research examining the extent to which community play provision actually affords opportunities for this type of play. Waller (2006) points out 'children can provide valuable perspectives about their environment to help implement changes to practice [and] design' (81). Thus, the present study sought to examine children's perspectives on playground equipment usage and preferences through interviews and naturalistic observations to investigate the extent to which playgrounds typically provided in community parks in Sydney (Australia) support children's engagement in risky play and allow children to explore risk in safe environments where hazards have been removed.

Method

Participants

Thirty-eight children (25 male, 13 female) ranging in age from 48 to 64 months ($M = 55.68$, $SD = 5.25$) were recruited from six early childhood centres located in different regions of metropolitan Sydney, Australia. All families of 4- and 5-year-old children attending the centres were invited to participate but only those children whose parents returned signed consents were included in the study. Families were mainly of Anglo-Australian background (78%) and with mothers having educational levels as follows: university degree (59%); other post-secondary qualification (19%); secondary school (22%). The majority (71%) of the children were firstborn with most (44%) having one sibling. With the exception of three children, all were born in Australia. All children participated in the initial interview phase of the study. A subset of 12 children (eight boys, four girls) remained in the study for the observation phase. In addition to written consent from parents, the children also gave their verbal consent both at the time of the interviews and again prior to the play observations.

Measures

Interviews

Semi-structured interviews explored children's play preferences, frequency of use of park playground equipment; whether they avoided experiences that they perceived as being too difficult or too scary; and their response to injuries during outdoor play.

Stimulus photographs

Interviews also employed the use of stimulus photographs to explore children's preferences for particular types of playground equipment. The use of photographs to elicit responses during interviews enables children to provide insights and express views beyond those they may provide in traditional interview situations by stimulating discussion and supporting expression without the dependence on verbal skills (Cappello 2005). For example, it was unlikely that all of the young participants in this study had the verbal skills to name and/or adequately describe the components or features of the playground equipment or their behaviour whilst playing on it. Therefore, the use of photographs of the various play structures enabled them to communicate both verbally and non-verbally, through pointing and gestures, to enhance their meaning and to support their comprehension of questions.

The stimulus material included photographs of two types of playground equipment. The first set of photographs showed three individual pieces of equipment – a space net, a flying fox (cable tow ride), and a long, tall tubular slide. These playground structures were chosen as they are not commonly found in community parks and presented a greater degree of challenge than playground equipment typically encountered by 4- to 5-year-old children. Children viewed these photographs in random order. The second set of photographs was of composite play structures typically found in community parks. The photographs were of four different play structures designed for children aged 2- to 12-years-of-age. The play structures featured in each successive set of photographs (two photographs of each structure taken from different angles) were selected to present a graduated degree of challenge for the children (in terms of height of equipment as well as number and complexity of individual components of the structure). Children viewed all four sets of photographs at the same time.

Observations

Children's experiences of risky play were examined using naturalistic observations at a community park playground. Observed risk-taking behaviour was coded according to the categories outlined in Table 1. These categories of risk-taking were developed specifically for this study to reflect the elements of risk-taking as identified in the literature. The categories acknowledge that risk may have positive or negative outcomes (Jambor 1986; Little and Wyver 2008; Tovey 2007), risky play involves testing boundaries and exploring risk (Ball 2002; Lester and Russell 2008) and attempting something beyond their current skill level (Stephenson 2003). The categories also acknowledge that negative consequences may result from either deliberate violations of safe practice or from errors in judgment (Rowe and Maughan 2009). Furthermore, in any given situation the degree of risk varies depending on the task itself, environmental factors, the child's motivation and current capabilities in relation to the task. Hence children potentially engage in various levels of risk-taking ranging from very

Table 1. Categories of risk-taking behaviour.

Category	Example
Risk avoidance	Child makes obvious attempt to avoid a particular task or gives verbal indication of unwillingness to complete task <i>or</i> attempts task under protest and only with considerable adult assistance; may exhibit signs of distress <i>or</i> adapts behaviour to reduce the level of risk.
Exploratory risk appraisal	Child hesitant in approach to equipment; looks for/requests guidance or assistance; makes initial attempt at task but gives up <i>or</i> child initiates request to complete task but adult tells child task is too difficult.
Very low/no risk	Child confidently approaches activity/equipment; equipment used in appropriate (as-intended manner); child exhibits competent skill level; facial expression suggests confidence and enjoyment.
Low risk (positive)	Independently attempts activity at or slightly above current skill level – task involves low degree of injury risk if unsuccessful or not careful. Child engages in trial and error to successfully complete task or if unsuccessful lack of success does not result in injury or only minor injury <i>or</i> child seeks/receives adult help to complete task and completes task with assistance.
Low risk (negative)	Child engages in inappropriate use of equipment but there is no or very little risk of injury.
Moderate risk (positive)	Child actively challenges self to complete task above current skill level; facial expression indicates determination, concentration and satisfaction/enjoyment in task completion. Unsuccessful completion of task may result in minor injury.
Moderate risk (negative)	Child engages in some moderately dangerous or inappropriate behaviour that could result in minor – moderate injury.
High risk (positive)	Child confident in challenging self to complete difficult task or independently successfully completes task that could result in moderate injury if unsuccessful. Child seems in control. Takes necessary action to prevent injury (e.g., modifies behaviour or seeks assistance). Requires close adult supervision.
High risk (negative)	Uses equipment in a dangerous or inappropriate manner that is contrary to the intended usage or attempts task well beyond current skill level. High probability of moderate to serious injury. Requires intervention by adult.

low or no risk through to high risk as well as behaviours where they engage in trial and error as they attempt to assess the situation. Play episodes were video recorded for later analysis.

Description of playgrounds

Park playgrounds were identified in consultation with the children's parents and hence all children recruited from the same EC centre were observed at the same park playground. All the playgrounds were similar and typical of those provided by local governments throughout the Sydney metropolitan area. The playground equipment was the focal point of these parks and the parks offered limited opportunities for unstructured play with loose materials such as sand, water or natural elements within the environment. The equipment at the parks consisted of large composite play structures combining a number of different activities including, but not limited to, swings,

a variety of ladders, monkey bars, sliding poles, horizontal track rides, and climbing ropes, and were similar to those in the photographs shown to the children during their interviews.

Ethical considerations

The aim of this study was to observe risky play which could at times involve allowing children to expose themselves to hazards or engage in injury-risk behaviours. Whilst a non-interventionist approach may have allowed for the observation of a wider range of risk behaviours, the safety of the children was important. At all times the children were supervised by their parent, hence decisions about whether intervention was necessary for the children's safety was the parents' responsibility; thus some children may have been allowed to engage in higher risk behaviours than others but none were exposed to situations where injury risk was high.

Procedure

Semi-structured interviews were conducted at the children's early childhood centres in individual sessions of approximately 20 minutes duration. For those children agreeing to participate in the observation phase, observations of the children's play at the park playgrounds were conducted as soon as possible after the completion of the interviews (usually the following week). Sessions at the park lasted approximately 20 minutes. The children were video recorded as they engaged in free play on the playground equipment.

Approach to data analysis

Interviews were transcribed verbatim and responses were coded at question level to identify the most frequent responses to each question and analysed using descriptive statistics. For the observations of the children's play, using the categories of risk-taking outlined in Table 1, the children's behaviour was coded at 20-second intervals according to the dominant behaviour exhibited during that period. Hence only one type of behaviour was coded as present during each 20-second period. Scores derived for child target behaviours represent a percentage of the total duration of the period of observation. NVivo 8 software (QSR International 2008) was used to facilitate the coding and analysis of the play episodes. Fifty per cent of the observations were coded by a second observer and inter-rater reliability was calculated using Kappa's coefficient with values ranging from 0.87–1.00 being obtained.

Results

Interviews and stimulus photographs

Outdoor play was nominated by the majority (79%) of the children as their preferred play activity and 89% of the children indicated that they regularly visited park playgrounds with 26% of the children doing so at least weekly. Analysis of the children's experience with the play apparatus shown in the first set of photographs revealed that eight children had prior experience with a flying fox, 13 had previously climbed a space net, and 10 had experience with the tall, tubular slide similar to that shown.

When asked whether given the opportunity they would like to play on this type of apparatus, 80% of the children indicated ‘yes’ for the flying fox, 70% for the space net and 90% for the slide.

Figure 1 shows children’s playground choice from the second set of photographs indicating that the majority of the children ($n = 18$, 47.5%) selected the most challenging playground structure with 26% ($n = 10$) selecting the second most challenging. Only two children selected the least challenging.

The interviews also explored children’s perceptions of the various components of the playground equipment in relation to their own abilities and whether they considered any of the apparatus to be too difficult for them and whether they would be too scared to attempt any of the activities. As can be seen in Figure 2, a slight majority of the children (40%) indicated that they did not consider any of the apparatus to be too difficult and most (84%) indicated that they would not be too scared to attempt any of the activities. The monkey bar and climbing apparatus (complex ladders, climbing ropes) were identified as presenting the most difficulty. The children provided reasons for their appraisal of the level of difficulty based on insufficient skills (31%) and age or size (24%).

In terms of children’s behaviour after experiencing injury during play, 10 children (26%) indicated that they would avoid the activity, and 4 (11%) said they would try again but with adult assistance. The majority ($n = 14$; 37%) indicated they would try the activity again independently.

Play observations

Analysis of the play episodes for the 12 children who were observed at the park playgrounds revealed that the children mainly engaged in lower level risk behaviours with all children engaging in no or very low risk behaviours (see Table 2). These behaviours accounted for 37% and 45% of the total time spent playing on the equipment. Only a few children engaged in either moderate risk behaviour or exploratory risk appraisal and just two children actively avoided some of the apparatus (the fireman’s pole and one of the more difficult ladders – see Table 3).

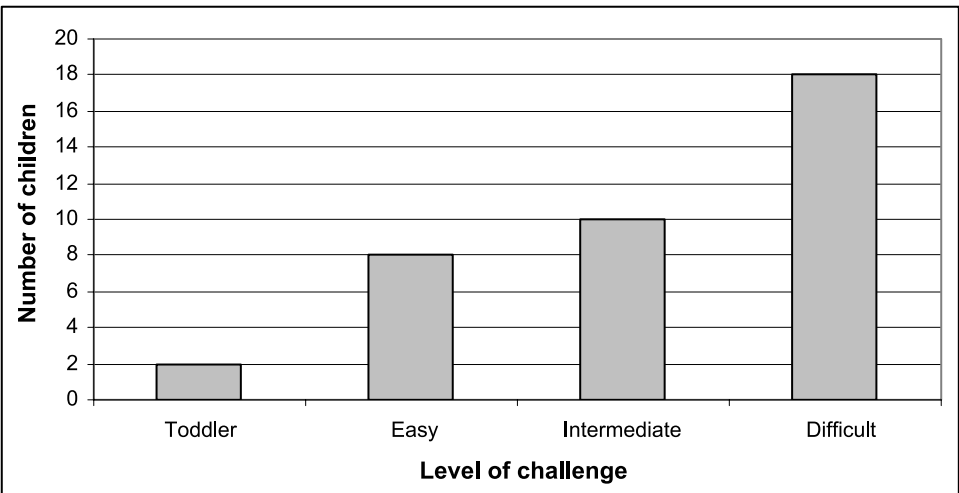


Figure 1. Children’s choice of playground from stimulus photographs.

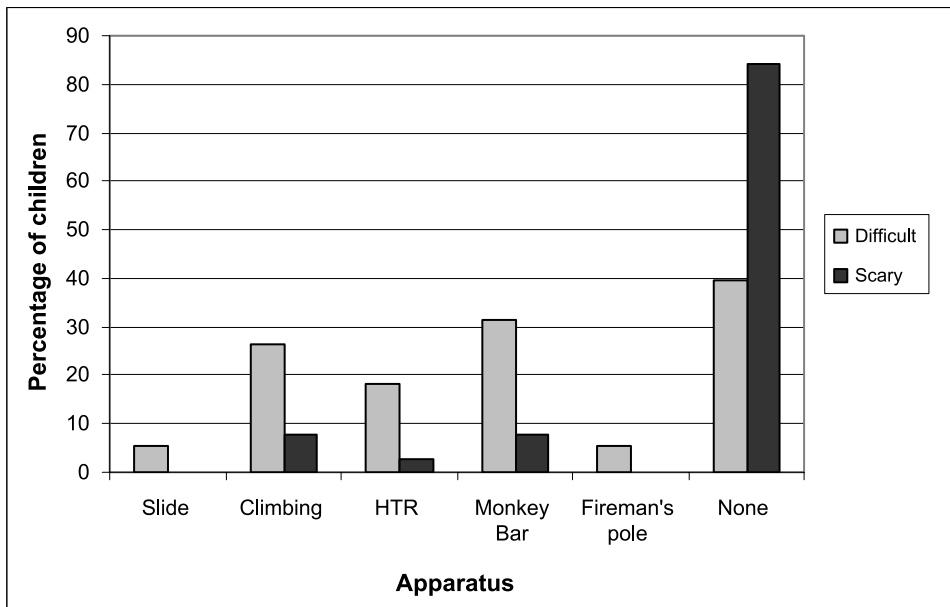


Figure 2. Playground apparatus identified by children as difficult or 'scary'.

Table 2. Observed risk behaviours.

	Mean proportion of total play (%)	Number of Ch'n
Risk avoidance	1.56	2
Exploratory risk appraisal	4.86	8
No risk	37.27	12
Low risk – positive	45.46	12
Low risk – negative	0.52	1
Moderate risk – positive	4.05	7

Using NVivo8 (QSR International 2008), a coding matrix query was conducted to ascertain whether particular apparatus were associated with greater risk-taking. Table 3 shows the relationship between the children's observed risk behaviours and the playground apparatus in use at the time. Moderate risk-taking and exploratory behaviours were mainly observed in relation to the more complex ladders, higher slides, and monkey bars. On three occasions the guardrails were also climbed on, increasing the level of risk.

Discussion

Through the use of interviews and naturalistic observations, this study aimed to investigate children's play preferences and engagement in risky play using playground equipment typically available in community parks. The findings demonstrate that the children engaged in a range of play behaviors involving mainly low levels of risk as well as exploratory behaviour whereby the children appraised the task in relation to their current ability. Furthermore, whilst much of the playground apparatus allowed

Table 3. Frequency of observed risk-taking behaviours as a function of play apparatus in use.

	Exploratory risk appraisal	Very low risk	Low risk – positive	Low risk – negative	Moderate risk – positive	Risk avoidance
Climbing ropes	3	5	6	0	0	0
Fireman's pole	1	7	9	0	0	1
Horizontal track ride	1	3	3	0	1	0
Ladder – straight	1	7	8	1	0	0
Ladder – complex	8	16	16	0	6	1
Monkey Bars	4	2	6	0	1	0
Swings	0	10	9	1	1	0
Slide – low	0	3	2	0	0	0
Slide – medium	1	9	4	1	3	0
Slide – high	0	1	1	0	1	0
Trapeze bar	1	1	1	0	0	0
Guard rails	0	5	4	0	3	0

the children to demonstrate their mastery of various motor skills, the study identifies activities that provide limited opportunities for children to build on their capabilities.

Children's preference for challenging equipment

The majority of the children showed a preference for the more challenging playground equipment shown in the stimulus photographs. Furthermore, although only 21% to 34% of the children had experience using the flying fox, space net and tall tubular slide, 70% to 90% (depending on the apparatus) of the children expressed a desire to play on these types of apparatus. These findings add support for previous studies (Sandseter 2007; Stephenson 2003) that many children naturally seek challenging play that allows them to experience the sensations of height and speed. However, these responses need to be interpreted cautiously as children's stated desire may not necessarily equate to actual behaviour if given the opportunity. Although Morrongiello (2004) found a strong correlation between children's stated willingness to engage in risk-taking and their actual risk-taking behaviours suggesting reliability of the children's responses.

Children's engagement in risky play

The children were mainly engaged in low or no observable risk situations. The types of behaviors described in the moderate risk (positive) and exploratory risk appraisal categories are those that are most conducive to enhancing children's development. It should be noted that as the park playgrounds were familiar to the children, this exploratory behaviour was not necessitated by having to familiarise themselves with the equipment but rather can be explained in terms of being exploratory in relation to their developing abilities. Thus, activities of this nature provide opportunities for children to test their capabilities. On the other hand, activities involving negligible risk provide opportunities for children to practice and master skills already acquired. This is important, but in order to learn new skills and develop further, they also need the opportunity to extend themselves through challenging experiences that may involve higher

levels of risk. Very few children exhibited moderate risk-taking suggesting that the playground equipment in this study provided limited opportunities for children to challenge themselves, try new skills or push the limits of their capabilities.

It has been argued children frequently seek challenging and risky play (Sandseter 2007, 2009; Stephenson 2003). Sandseter (2009) noted from her observations of children's outdoor play in Norwegian pre-schools that the children sought to intensify the risk in their play by increasing the level of height and speed. Whilst the different components of the playground equipment in the present study afforded some opportunities for this to occur, a few children were observed climbing the guardrails of the equipment perhaps in an effort to increase the height and hence, intensify the risk. When children are presented with insufficient challenge, the likelihood of using the equipment in inappropriate, dangerous ways increases (Stephenson 2003). Although the observed instances of climbing on the guardrails in this study only constituted a low level of risk, the potential for more dangerous behaviour exists particularly for older children. However, for the most part the children engaged in behaviours that were well within their current abilities and the equipment appeared to hold little appeal and did not sustain play as the children showed signs of disinterest towards the end of the observation period.

In addition when the children's usage of the various components of the playground apparatus are considered in terms of Sandseter's (2007) categories of risky play it is apparent that the children showed a preference for activities that allowed them to experience the sensations of height and speed such as the slides, swings, horizontal track ride, monkey bar and climbing ropes. The play preferences of the children in the present study lend further support to those of previous studies (Sandseter 2007; Stephenson 2003) that risky play is characterised by the exploration of height and speed and the concept of *ilynx* as described by Caillois (1962).

Provision for children's play in the community

The variations in the playground equipment available across the five different park playgrounds used for this study perhaps reflect the priority (or lack thereof) given to facilities for young children by the local government authorities who provide the equipment. Whilst all the equipment was designed for children aged 3- to 5-years and even older, for the most part the various components of the apparatus provided very little challenge for the children. Only the monkey bars and one of the more difficult ladders presented a higher level of challenge and risk-taking. Nixon et al. (2004) reported that upper body equipment such as monkey bars, horizontal ladders and horizontal track rides are associated with the majority of bony fractures occurring on playground equipment. This higher injury rate may be because these play elements are the most popular item of play equipment and not because they are inherently more dangerous when the injury data is adjusted for the degree of usage.

Kyttä (2006) explains the importance of the environment in affording the individual the potential for engagement in a particular activity or behaviour. The 'outdoor environment affords different types of play and... children perceive the functions of the environment as invitations for certain activities' (Sandseter 2009, 439). Hence the environment needs to afford opportunities for activities that children might perceive as risky. As Sandseter (2007, 2009) and others (see Greenfield 2004; Stephenson 2003) have found, many children are naturally drawn to risky play and enjoy the thrill, excitement and even fear that such play evokes but playgrounds such as those in this

study afford little prospect of such experiences. This has implications for playground design and play provision. The playgrounds in this study were typical of the 'off-the-shelf' fixed play equipment commonly found in public playgrounds (DCMS 2004). The aim should be to move towards the provision of playgrounds such as those described by Sandseter (2009) and Lee (1999) which provide greater challenge for children and consequently reduce the incidence of negative risk-taking associated with higher injury-risk.

Insufficient challenge can easily lead to boredom which then promotes inappropriate risk-taking as children seek to inject excitement and challenge into the experience (Jambor 1995). It is this type of behaviour that is often associated with unintentional injury. Whilst the children in this study were accompanied by their parents, it was unlikely that situations involving high levels of inappropriate risk-taking would occur as parents would intervene (see Little *in press*). However, for older children who are more likely to use the equipment unsupervised, the potential for inappropriate risk-taking increases as the features of the equipment would hold little appeal for these children and there are often no alternatives available. Many local government authorities have taken the decision to remove equipment from community parks due to fears of litigation as a result of injuries to children (Ball 2007). This is an extreme response and one which would not be necessary if the equipment met the children's needs by offering challenge, stimulation, adventure and excitement, something that was largely missing from the parks visited in the course of this study. As pointed out in the introduction, even organisations such as RoSPA, whose role it is to reduce injury-risk through the implementation of Standards for playground equipment, believe that the removal of all risk is not necessary but rather the focus should be on the removal of hazards associated with serious injury. The issue relates to drawing a distinction between hazard and risk. The removal of hazards does not mean that opportunities for children to challenge themselves and experience the thrill, excitement and sense of achievement associated with risky play are denied. Veitch et al. (2006) argue that engineers and designers need to reconsider playground design to provide more interesting and stimulating equipment that caters for a wider age range and put some fear and adventure in our playground design whilst retaining the hazard filter (Eager 2009). A space net – a device where the increasing level of injury-risk is quite obvious to the child at play – is a good example of appropriate risk. A child that can climb can appreciate that increasing their height also increases their risk exposure. Apparatus such as this acknowledges children's ability to assess and manage risk whilst catering for their desire for challenge and excitement in their play (DCMS 2004).

Directions for further research

The park playgrounds in this study, whilst typical of this type of play provision in Australia, only represented a limited range of possible play opportunities. Studies examining children's engagement in risky play across different types of playground equipment and different contexts would contribute to current understanding of this aspect of children's play. The playgrounds in this study were all 'off the shelf' fixed equipment composite structures (DCMS 2004). Comparisons of children's play on contemporary and adventure playgrounds as described by Lee (1999) or playground apparatus such as the space net, flying fox and slide viewed by the children in this study would be beneficial in identifying elements of playground design that best support risky play and capture children's interests and play preferences. To this end,

children also need to be provided with greater input through the active involvement of children in both the design and management of play spaces (Waller 2006).

Conclusion

Successful play spaces are attractive to children and invite repeated visits. To achieve this goal, children need to be provided with choice and variety that reflects different interests and abilities, and offers opportunities for challenge and risk to evoke and sustain excitement and stimulation (DCMS 2004). We argue that the provisions contained within playground equipment Standards such as EN1176:2008 (European Committee for Standardisation 2008) and AS 4685:2004 (Standards Australia 2004) provide the playground designer with the opportunity to achieve the dual objective of designing a playground that is free from hazards that are obvious to the child while at the same time exposing the child to managed levels of risk. Negative risks that are not apparent to the child at play we classify as hazards and these need to be engineered out of the playground. An example of an inappropriate risk or hazard would be one that is not clearly apparent to a child at play such as head and neck or chest entrapment, or potential finger crush point. The elimination of these hazards allows children to safely explore, experiment, try things out and engage in healthy positive risk-taking that supports their development.

When considered with previous studies such as those of Sandseter (2007), Stephenson (2003) and Greenfield (2004), the findings from this study further our understanding of children's engagement in risky play. Whilst each of these studies have been conducted in different contexts from natural environments, to playgrounds, to early childhood settings, they combine to present a picture of the characteristics of risky play and the types of physical and social environments that support this type of play. As a consequence, they provide valuable information for play providers, playground designers and early childhood practitioners in provisioning environments that meet children's desire for stimulating, challenging play through which they can explore risk and experience a sense of achievement.

References

- Ball, D.J. 2002. *Playgrounds – risks, benefits and choices*. (Contract research report No. 426/2002). London: Middlesex University. www.hse.gov.uk/research/crr_pdf/2002/crr02426.pdf
- Ball, D.J. 2007. Risk and the demise of children's play. In *Growing up with risk*, ed. B. Thom, R. Sales, and J. Pearce, 57–76. Bristol: Policy Press.
- Ball, D.J., T. Gill, and B. Spiegel. 2008. *Managing risk in play provision: Implementation guide*. www.playengland.org.uk/resources/managing-risk-play-provision.pdf
- Boyer, T.W. 2006. The development of risk-taking: A multi-perspective review. *Developmental Review* 26: 291–345.
- Caillois, R. 1962. *Man, play, and games* (M. Barash, Trans.). London: Thames and Hudson. (Original work published 1958.)
- Cappello, M. 2005. Photo interviews: Eliciting data through conversations with children. *Field Methods* 17, no. 2: 170–82.
- Christensen, P., and M. Mikkelsen. 2008. Jumping off and being careful: Children's strategies of risk management in everyday life. *Sociology of Health and Illness* 30, no. 1: 112–30.
- Clements, R. 2004. An investigation of the status of outdoor play. *Contemporary Issues in Early Childhood* 5, no. 1: 68–80.
- Clifford, M.M. 1991. Risk taking: Theoretical, empirical, and educational considerations. *Educational Psychologist* 26, no. 3/4: 263–97.

- Department for Culture Media and Sport (DCMS). 2004. *Getting serious about play: A review of children's play*. London: DMCS. [www.culture.gov.uk/NR/rdonlyres/21762951-E07E-4439-8BA3-04c6ece510a3/0/ ReviewofChildrensPlay.pdf](http://www.culture.gov.uk/NR/rdonlyres/21762951-E07E-4439-8BA3-04c6ece510a3/0/ReviewofChildrensPlay.pdf)
- DiLillo, D., R. Potts, and S. Himes. 1998. Predictors of children's risk appraisals. *Journal of Applied Developmental Psychology* 19, no. 3: 415–27.
- Eager, D. 2009. Encouraging risk. *Australasian Leisure Management* 77, November/December: 54–6.
- European Committee for Standardisation. 2008. *EN 1176.1:2008 (2008) Playground equipment and surfacing – Part 1: General safety requirements and test method*. Brussels: European Committee for Standardisation.
- Furedi, F. 2001. *Paranoid parenting: Abandon your anxieties and be a good parent*. London: Penguin.
- Gill, T. 2007. *No fear: Growing up in a risk averse society*. London: Calouste Gulbenkian Foundation.
- Ginsberg, H.J., and S.M. Miller. 1982. Sex differences in children's risk-taking behaviour. *Child Development* 53: 426–8.
- Greenfield, C. 2004. Can run, play on bikes, jump the zoom slide, and play on the swings: Exploring the value of outdoor play. *Australian Journal of Early Childhood* 29, no. 2: 1–5.
- Helps, Y.L.M., and S.C. Pointer. 2006. Child injury due to falls from playground equipment. Australia 2002–04. *NISU Briefing* 6, October: 1–13.
- Henniger, M.L. 1994. Planning for outdoor play. *Young Children* 49, no. 4: 10–5.
- Hillier, L.M., and B.A. Morrongiello. 1998. Age and gender differences in school-age children's appraisals of injury risk. *Journal of Pediatric Psychology* 23: 229–38.
- Jambor, T. 1986. Risk-taking needs in children: An accommodating play environment. *Children's Environments Quarterly* 3, no. 4: 22–5.
- Jambor, T. 1995. Coordinating the elusive playground triad: Managing children's risk-taking behavior, (while) facilitating optimal challenge opportunities, (within) a safe environment. Paper presented at the Playground Safety: An International Conference, Pennsylvania State University, October, in Pennsylvania. (ERIC Document Reproduction Service no. ED405132.)
- Kindleberger Hagan, L., and J. Kuebli. 2007. Mothers' and fathers' socialisation of pre-schoolers' physical risk taking. *Journal of Applied Developmental Psychology* 28, no. 1: 2–14.
- Kopfstein, D. 1973. Risk-taking behavior and cognitive style. *Child Development* 44: 190–2.
- Kyttä, M. 2006. Environmental child-friendliness in the light of the Bullerby Model. In *Children and their environments. Learning, using and designing spaces*, ed. C. Spencer, and M. Blades, 141–158. Cambridge: Cambridge University Press.
- Lee, S. 1999. The cognition of playground safety. A comparison of traditional, contemporary, and naturalised playground types. In *Proceedings of the International Playground Safety conference*, ed. M.L. Christiansen. Pennsylvania: Pennstate University.
- Lester, S., and W. Russell. 2008. *Play for a change. Play, policy and practice: A review of contemporary perspectives*. <http://www.playengland.org.uk/Page.asp>
- Little, H. In press. Relationship between parents' beliefs and their responses to children's risk-taking behaviour during outdoor play. *Journal of Early Childhood Research* 9, no. 3: 1–16.
- Little, H., and S. Wyver. 2008. Outdoor play: Does avoiding the risks reduce the benefits? *Australian Journal of Early Childhood* 33, no. 2: 33–40.
- Madge, N., and J. Barker. 2007. *Risk and childhood*. London: Risk Commission, Royal Society for the Encouragement of Arts, Manufactures and Commerce (RSA). www.rsariskcommission.org/blog/default.aspx?PageId=650
- Mitchell, R., M. Cavanagh, and D. Eager. 2006. Not all risk is bad, playgrounds as a learning environment for children. *International Journal of Injury Control and Safety Promotion* 13, no. 2: 122–4.
- Morrongiello, B.A. 2004. Do children's intentions to risk take relate to actual risk taking? *Injury Prevention* 10: 62–4.
- Morrongiello, B.A., and M. Bradley. 1997. Sibling power: influence of older siblings' persuasive appeals on younger siblings' judgments about risk taking behaviours. *Injury Prevention* 3: 23–8.
- Morrongiello, B.A., M. Corbett, J. Lasenby, N. Johnston, and M. McCourt. 2006. Factors influencing young children's risk of unintentional injury: Parenting style and strategies for

- teaching about home safety. *Journal of Applied Developmental Psychology* 27, no. 6: 560–70.
- Morrongiello, B.A., and T. Dawber. 1999. Parental influences on toddlers' injury-risk behaviors: Are sons socialised differently? *Journal of Applied Developmental Psychology* 20, no. 2: 227–51.
- Morrongiello, B.A., and T. Dawber. 2000. Mothers' responses to sons and daughters engaging in injury-risk behaviors on a playground: Implications for sex differences in injury rates. *Journal of Experimental Child Psychology* 76, no. 2: 89–103.
- Morrongiello, B.A., and K. Hogg. 2004. Mothers' reactions to children misbehaving in ways that can lead to injury: Implications for gender differences in children's risk taking and injuries. *Sex Roles* 50, nos. 1–2: 103–18.
- Morrongiello, B.A., and J. Lasenby-Lessard. 2007. Psychological determinants of risk taking by children: An integrative model and implications for interventions. *Injury Prevention* 13: 20–5.
- Nixon, J., C. Acton, B. Wallis, D. Battistutta, C. Perry, and D. Eager. 2004. Preventing injuries on horizontal ladders and track rides. *Injury Control and Safety Promotion* 11, no. 4: 219–24.
- Plumert, J.M., and D.C. Schwebel. 1997. Social and temperamental influences on children's overestimation of their physical abilities: Links to accidental injuries, *Journal of Experimental Psychology* 67: 317–37.
- Rosenbloom, T. 2003. Risk evaluation and risky behavior of high and low sensation seekers. *Social Behavior and Personality* 31, no. 4: 375–86.
- Rowe, R., and B. Maughan. 2009. The role of risk-taking and errors in children's liability to unintentional injury. *Accident Analysis and Prevention* 41: 670–5.
- Royal Society for the Prevention of Accidents (RoSPA). n.d. *Play safety: Information sheet no. 36*. http://www.rospa.com/playsafety/info/36_students.pdf
- Sandseter, E.B.H. 2007. Categorising risky play – how can we identify risk-taking in children's play? *European Early Childhood Education Research Journal* 15, no. 2: 237–52.
- Sandseter, E.B.H. 2009. Affordances for risky play in pre-school: The importance of features in the play environment. *Early Childhood Education Journal* 36, no. 5: 439–46.
- Standards Australia. 1996. *AS/NZS 4422:1996 Australian and New Zealand standard: Playground surfacing specifications, requirements and test method*. Sydney: Standards Australia.
- Standards Australia. 2004. *Playground equipment. AS 4685:2004*. Sydney: Standards Australia.
- Stephenson, A. 2003. Physical risk-taking: Dangerous or endangered? *Early Years* 23, no. 1: 35–43.
- Stine, S. 1997. *Landscapes for learning*. New York: John Wiley and Sons.
- Tovey, H. 2007. *Playing outdoors: Spaces and places, risk and challenge*. Maidenhead, Berkshire: Open University Press.
- Valentine, G., and J. McKendrick. 1997. Children's outdoor play: Exploring parental concerns about children's safety and the changing nature of childhood. *Geoforum* 28, no. 2: 219–35.
- Veitch, J., S. Bagley, K. Ball, and J. Salmon. 2006. Where do children usually play? A qualitative study of parents' perceptions of influences on children's active free-play. *Health and Place* 12, no. 4: 383–93.
- Waller, T. 2006. 'Don't come too close to my octopus tree': Recording and evaluating young children's perspectives on outdoor learning. *Children, Youth and Environments* 16, no. 2: 75–104.
- Walmsley, M., R. Bagia, and D. Eager. 2010. *Project management for engineers*. Sydney: McGraw-Hill Australia.
- Waters, J., and S. Begley. 2007. Supporting the development of risk-taking behaviours in the early years: An exploratory study. *Education 3–13* 35, no. 4: 365–77.
- Zuckerman, M., and D.M. Kuhlman. 2000. Personality and risk-taking: Common biosocial factors. *Journal of Personality* 68, no. 6: 999–1029.