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'EXPLORING THE RELATIONSHIP BETWEEN DESIGN APPROACH AND PLAY VALUE OF OUTDOOR PLAY SPACES'

Introduction

In recent years the debate surrounding children's play has come up the national and local political agenda within England. Years of campaigning, research and lobbying has increased political awareness and financial resourcing for children's outdoor play. The BIG Lottery Fund (2006) provided £155 million towards developing play opportunities, including the provision of new public outdoor play spaces. This was followed by the launch of a 10 year Children's Plan (DCSF, 2007), national play strategy (DCMS, 2008), and £235 million for the delivery of 3,500 new or refurbished outdoor play spaces and adventure playgrounds across England (DCSF, 2007) over a three year period. Never before had so much funding been available at a national level for outdoor play in England. The new coalition government of May 2010 initially suspended the last year of this funding programme but reinstated most of it by autumn 2010.

These large funding programmes have been accompanied by a political and professional drive to move away from more 'traditional' approaches to play spaces, or playgrounds, to more 'natural' approaches to the provision of outdoor play environments. Underpinning these developments is an apparent assumption that play spaces with a more 'natural' design approach provide increased opportunities for play than those with a more 'traditional' design approach. To this end the previous government sponsored the publication of two non statutory practice guidance documents: 'Design for Play (DCSF and Play England, 2008a) and 'Managing Risk in Play' (DCSF and Play England, 2008b).

However, until recently most of the professional and academic work in England has focused on demonstrating the importance of play to a child and their development, without evaluating how it is or has been accommodated for within the outdoor environment. As such, this paper seeks to explore the relationship between play value and play space design, through the development and testing of a tool to assess this relationship. To this end the paper draws upon multidisciplinary academic and professional literature and discusses issues such as: what is play; theories of play; its importance to child development; the physical aspects and opportunities for play within outdoor play spaces and how the design approach to such outdoor spaces has altered over time. The paper then uses this literature to develop a tool to test the assumption that a more 'natural' play space provides increased play value over the more 'traditional' approach.

Definitions of play

The term play can hold different meanings and many definitions have been made by adults to define the word and characterise the activity of play. It has been described as 'a continually creative process' (Aaron and Winawer, 1965), an 'imitation of adult's activities bringing children closer to the adult world' (Noschis, 1992), 'scientific research conducted by children' (Eible-Eibesfeldt, 1970) 'an approach to action not a form of activity (Moyles, 1989) and as the 'nature of childhood' (Prout and James, 1997). Possibly the most well known discourse about play is that of Sutton-Smith (1997) who discusses the seven rhetoric's of play in the Ambiguity of Play. Some have concluded that the definitions of play, which cover a multitude of activities and behaviors may 'serve a variety of purposes' (Bennett et al., 1997), while others have argued that because play is complex no single definition is necessary (Pellegrini and Smith, 1998, Coalter and Taylor, 2001). However, there is a strong counter argument which is that without a definition, the impact, credibility and comparability of some research is lost (Cattanach, 1998).

For the purpose of this research the authors have chosen to use the contemporary definition being used by policy makers and many practitioners in England that play is a "freely chosen, personally directed, and intrinsically motivated behaviour that actively engages the child" (NPFA, 2000:6).

Development of outdoor play spaces

The term 'play space' is a transferable and loose notion that can be applied to any environment in which a child chooses to play. However, for the purpose of this study the focus was on outdoor environments that have been specifically designed and designated as a place in which children can play.

The designation of play spaces developed as a consequence of mass urbanisation during the industrial age of the 19th Century. The perceived need to keep children off the streets, and away from disagreeable influences and increasing traffic, led to an increase in the zoning of land and the designation of specific areas for children's play, known as playgrounds (Hart, 2002). In England, The Recreation Grounds Act of 1859 recommended that identifiable spaces in urban areas should be set aside for children's play activities (Heseltine and Holborn, 1987). –However, these spaces were often located away from children's homes, and consequently outdoor play was often not a spontaneous activity but instead became an organised and planned event (Jacobs, 1961). The design of playgrounds, as specific designated outdoor places for children to play in, have been described by Mergen (2003) as consisting of three basic types; 'traditional', 'contemporary' and 'adventure'.

The 'traditional' playground was considered to be rooted in the 1890s sentiment that playgrounds were a way of improving a child's moral and physical functioning with little regard being given to children's intellectual and social needs (Krohe, 1996). This design rationale was heavily influenced by the then popular energy play theories of Spencer (1875) and Patrick (1916). These spaces were characteristically dominated by fixed cast iron play equipment, replicating indoor gymnastic equipment (Mergen, 2003 and Frost, 2006), providing opportunities for physical activity, but not supporting exploratory, moveable and imaginative play. As a result these play areas were one-dimensional, anchored, and non-responsive and considered as not providing for the complexity of a child's needs (Hawkins, 1970 and Hart, 2002).

In the post war climate of the 1960s there was a population shift from cities to suburbs and an increasing concern for child safety (Mergen, 2003). During this period new plastics led to the development of specific playground equipment, the 'contemporary' approach (Mergen, 2003). Like 'traditional' playgrounds the fixed play equipment was a dominating characteristic, however, 'contemporary' designs were more sculptural in quality (Hayward et al., 1974) and used abstract coloured structures known as superstructures or multi-functional structures (Eriksen, 1985). However, although often artistically pleasing, the contemporary approach could be awkward to engage with and although aimed to provide a stimulating environment for physical, intellectual and creative play were considered to fall short of providing real opportunities for these play types (Eriksen, 1985 and Arnold, 2003).

Footnote:Adventure playgrounds were developed in England following the example of Emdrup in Copenhagen. They are not the focus of this research and so will not be discussed further here.

The current situation in England

Forty years ago playgrounds were described by Holme and Massie (1970) as consisting of heavy fixed equipment, the occasional sandpit and tarmac surfacing providing little play value. More recent descriptions and understandings of playgrounds are that adults have provided 'standardised playscapes', created without the involvement of children (McKendrick, 1999) and as such are 'controlled and… governed by regulations, monitored by adult eyes and cameras' (Maxey, 1999). Some have stated that built environment professionals consider that children should play in playgrounds and no where else and that society has developed a belief that 'all of children's environmental needs can be accommodated [within] the playground' (Cunningham and Jones, 1999). Thus for forty or more years the provision of playgrounds in England has been heavily influenced by traditional designs with fixed, easily maintained apparatus, fencing and expensive surfacing, all of which requires little supervision (Eriksen, 1985).

In recent years this type of playground has been described as consisting of a kit of fixed play equipment, with a fence surrounding it and a carpet of rubber surface – a Kit, Fence, Carpet (KFC) playground (Woolley, 2007 and 2008) (see Figure 1). This is 'traditional' in its approach but often contains 'contemporary' influences in terms of its aesthetic appearance. However, this approach has, in the main, not been driven by an understanding of children's needs and how they can be accommodated within the external environment. Rather the drivers have been other factors including parental fear, the desire for rubber surfacing and fixed play equipment and a lack of skills to design in an appropriate way (Hendricks, 2001, Woolley, 2009).

Figure 1: A typical Kit Fence Carpet playground

Design of play spaces including the benefits of natural elements

Years of research by various authors have demonstrated the need for children's outdoor play spaces to provide for more complex opportunities for play than those offered by the prevailing KFC approach in England. Most notable of these authors are Moore et al. (1992) who identified a series of design criteria for play sites and Hart (1993) who suggested issues which should be taken into account in the design of outdoor play spaces. Stine (1997) identified that children's playgrounds should provide for a series of dichotomous relationships and Frost (Frost et al., 2004) developed an 'a la carte' menu for the design of playgrounds, drawing upon a variety of research and literature.

Others have identified that children have a predilection for the natural environment and enjoy playing with and using natural elements (Titman, 1994).   Indeed there is a growing body of international evidence which suggests that contact with 'nature' is not only desirable but may even be a human need (Kaplan, 1995, Woolley, 2008).   Research has suggested that for children, play within a natural environment can lead to an increase in confidence, independence and motor skills such as coordination, balance and agility and can reduce the effects of stress and reduce the symptoms of Attention Deficit and Hyperactivity Disorder (Grahn et al., 1997, Taylor et al. 2001, Wells & Evans, 2003, Fjortoft, 2004 and Murray and O'Brien, 2005).   The availability of nature may also lead to more imaginative and creative play, which fosters greater language and collaborative skills (Moore & Wong 1997, Fjortoft & Sageie, 2000).

The theme of children accessing and experiencing nature is continuously advocated by Louv (2006:1) who purports that 'the way children understand and experience nature has changed radically', and their 'physical contact and intimacy with nature is fading'.   He attributes this break with nature with the rise in childhood obesity, attention disorders and mental illnesses and describes a condition he calls 'nature deficit disorder' and is something which needs to be addressed (Louv, 2006:34).   This separation from nature has been perpetrated in the KFC approach to play spaces, whether consciously or not.

Natural Element	Play opportunities – or play value
Landform	Excellent for physical play: changes in levels for climbing, rolling, jumping and sliding. It can also be adapted to provide a sense of enclosure and open, high and low spatial experiences.
Vegetation	Use of trees and shrubs within an environment can add aesthetic, creative and educational value. Can be used for dens or as an educational tool when teaching children about the environment and seasonal changes
Materials	Wood, water, sand, stones and vegetation can offer educational and creative stimulation. Boulders and rocks provide for physical, imaginative dramatic, social and fantasy play.
Moving/loose parts	Closely linked with the provision of materials, but beyond the stimulation of a tactile environment, moving/loose parts can enhance creative and imaginative play and allow a child the opportunity to interact with and make sense of their environment.
(Sources: Lady Allen of Hurtwood, 1968, Nicholson, 1970, Moore et al, 1992, Maudsley, 2007, Woolley, 2008)	

Table 1: A summary of the relationship between the natural environment and play

However, the word 'natural', like the word play, can mean different things to different people but we suggest there is some commonality of understanding of the word 'natural' with respect to the outdoor environment. As such, this paper uses the premise that the 'natural' environment relates to the elements of landform, vegetation, materials and moving/loose parts and that these elements should be provided in a more natural play space. The relationships between these elements of the landscape and play can be understood as shown in table 1, and an example of this design type is shown in figure 2.

Figure 2: A more natural approach to an outdoor play space

Methodology

The provision of outdoor play spaces in England, as described so far in this paper, sets the context for the research now reported. The aims of the research were threefold; the first was to utilise multidisciplinary literature to develop a tool capable of assessing the relationship between play value and design of play spaces while the second aim was to test this tool on a series of sites as a pilot study to future research. The third aim was to test the tool on sites with different design approaches: some KFC and some designed with to include natural elements. This would help

develop an understanding of whether there was any apparent relationship between the style of play space design and the play value,. Underlying these aims was a desire to understand these issues from the viewpoint of a play space designer rather than from a children's or users' point of view. To have involved children would have been outside the scope of the aims of this research and logistically not achievable in the timescale for the fieldwork

From an understanding and interpretation of the literature the tool was developed under three dimensions; firstly, play type, secondly, physical elements and finally, the environmental characteristics of a site. The former of these dimensions addresses the intrinsic issues of the types and variety of play children might undertake in a play space while the latter two dimensions address the physical and environmental aspects of the play space. A tool was developed and following a small pilot study a pre-designed criteria sheet was developed. This acted as a controlling mechanism, which made cross-site observations more consistent and less subjective, increasing validity and reliability of the method. The tool was then used in a systematic way on 10 existing play spaces within an area of the East Midlands, England.

Sites were randomly selected from the top and bottom 20% of electoral wards as defined by the multiple indices of deprivation within the local authority where one of the authors worked at the time. Inadvertently this approach only appeared to yield play spaces of a single design approach, and although this was in itself of interest it meant that the relationship between different styles of a play space and play value could not be explored using these locations. Advice was taken from another officer within the local authority who identified potentially suitable sites, 'designed' in different ways. This guidance led to the selection of 10 sites which generally represented the two styles of KFC and play spaces with natural elements. The scores and observations elicited by the assessment method allowed for a two-fold evaluation, firstly, whether there was indeed a relationship between the design approach and play value on the tested sites and second, whether the tool was in itself successful in evaluating any relationship.

Development of tool to assess play value and design of play spaces

As identified above, the evaluation tool was developed under three dimensions; firstly, play type, secondly, physical elements and finally, the environmental characteristics of a site. These dimensions reflect the complementary and interrelated themes drawn from an understanding of the literature. The development of these three dimensions are now discussed, together with their scoring mechanisms.

Dimension 1: Play Types

A central tenet of this research was the concept of play value, and for this purpose is was contended that the play value of a space can be derived from its ability to maximise a child's developmental functions: emotional, social, physical and intellectual capacities (Hyder, 2004). Thus, the more the outdoor space can meet these needs, the greater the play value (Heseltine and Holborn, 1987). Heseltine and Holborn (1987) identify five developmental themes: environmental, physiological, creative, educational and social. How these can be provided for in a play space will be discussed before looking more closely at how different types of play can be understood and also provided for in a play space.

Environmental Development: Piaget theorised that human knowledge, understanding and development was based upon 'assimilation' and 'accommodation' of the local environment and therefore a child's environment should be: positive, stimulating and challenging (Heseltine and Holborn, 1987:16). There is also a growing body of contemporary literature, which suggests that access to a natural environment can advance an individual's intellectual, emotional, social, spiritual, and physical development (Kellert, 2005).

Physiological and Creative Development: Physiological development is understood to be the result of both sensory and motor function which contributes towards creativity and therefore creative development. Sensory play involves the use of one or more of the senses: touch, sight, smell, taste and hearing. The manipulation of materials such as sand, water, loose materials, building blocks and other play equipment can stimulate problem solving, creative thinking and improve fine and gross motor skills (Burdette and Whitaker, 2005). These are essential in the development of the physical skills needed for coordinated movement, intellectual advancement and the exploration of a child's own abilities and self esteem (Heseltine and Holborn, 1987). Thus children need the opportunity to develop and practice these competences, through the continued exposure of activities involving both fine and gross motor skills, including building, throwing and running (Bunker, 1991).

Educational Development: Piaget argued that the cognitive benefits of play resulted from the consolidation of knowledge and skills. Play spaces should allow for the exploration of shape, size, number and moving parts so a child can build up a bank of vital knowledge and experiences (Eriksen, 1985, Heseltine and Holborn, 1987). More recent research has suggested that improved cognition can aid social interaction, the development of language skills (Blatchford and Sharp, 1994)

and through the promotion of 'executive functioning' stimulate organisational, planning and problem solving skills (Burdette and Whitaker, 2005:48).

Social Development: Play spaces should provide opportunities for social interaction, which develops an individuals' ability to work in groups, share, negotiate, co-operate, resolve conflicts, and learn self-advocacy skills (Ginsburg, 2007, Hudson and Thompson, 2001).   Play can also stimulate emotional and social states, such as empathy and self-regulation, known as emotional intelligence, which is vital for successful future relationships (Goleman, 1996).   Thus the play space design should enable socialisation to occur, through allowing enough space for interaction when desired but also providing safe areas in which to retreat until confidence and self-assurance is developed (Heseltine and Holborn, 1987).

Developmental Theme (Heseltine and Holborn, 1987)	**Key design elements within a play space that can enhance play value**
Environmental	Value is derived from an ability to be able to understand the environment through the manipulation of movable parts, variable landform and natural elements such as mud, sticks, stones and water.
Physiological	The space should be able to provide for physical fitness and challenges in terms of fine and gross motor functioning. The environment should allow for balancing, jumping, climbing and running. Use of sensory elements helps fine and gross motor skills through the manipulation of the materials such as sand, water, loose materials, building blocks and play equipment.
Creative	Enhanced by moving parts, different textures, materials, heights, vegetation and varying landform. Children need to experience a variety of different spaces: high, low, small, large, exposed and protected.
Educational	Cognition is development through exploration of shapes, sizes, numbers and movement in multiple mediums.
Social	The space must allow for both small scale and large scale interactions. Small area allow for retreat while larger ones allow for team games and social re-enactment.
(Sources: Nicholson, 1970; Hill, 1980; Heseltine and Holborn, 1987; Coffin and Williams, 1989; Moore et al, 1992; Stine, 1997; Hart R, 2003; Woolley, 2007)	

Table 2: Relationship between developmental theme and design elements

Table 2 demonstrates that children require a play space to contain a variety of physical and environmental elements to allow for manipulation, social interaction and control of the total environment (Heseltine and Holborn, 1987 and Stine, 1997). The play environment should be inviting, stimulating, flexible, challenging and comfortable (Wilson, 2007) and enable the user to engage with different types of play.

Defining Types of play

To the understanding provided by the developmental themes will now be added a discussion about play types. The definition of types of play has developed, in part, from the playwork sector in England where there is a growing recognition that different types of play appear to exist – from an adult perspective at least. From an early childhood educational background play has been identified under five main headings; constructive, functional, fantasy, social play and games with rules (Moyles, 1989). However, Hughes, from a playwork background, expanded and subdivided these groupings into 15 categories of play (Hughes, 1996) and later to 16 (Hughes, 2002). These 16 are communication, creative, deep, dramatic, exploratory, fantasy, imaginative, locomotor, mastery, object, recapitulative, role, rough and tumble, social, socio-dramatic and symbolic. It was considered that the use of 16 play types within the assessment tool would be too cumbersome and so the play value domain was brought together using the development themes of Heseltine and Holborn, the five play types of Moyles with the 16 play types of Hughes embedded within the 5 play types. The relationship between these is shown in Table 3.

Table 3: Developing Dimension 1 Play Types: Relationship between play types and development themes

The scoring of the play value dimension was undertaken by observation on each site and from an adults' perspective as to whether the play space allowed for each of the five play categories of constructive, functional, fantasy, social and games with rules.

Dimension 2: Physical elements of a space:

Dimension 2 is descriptive with the purpose of developing an overview of the physical elements that actually exist within a space. It assessed the prevalence and existence of key specific physical elements drawn from the review and interpretation of the literature. These were identified as 12 elements and are shown in table 4, together with an outline of scoring for this dimension.

Moyles (1989(Play types (early childhood educator)	Hughes (2002) (playworker)	Heseltine and Holborn (1987) Developmental themes
Constructive: manipulation and control of the environment (Wardle, 2000)	Creative, exploratory, mastery, object, symbolic, recapitulative	Creative, Educational, Physiological and Environmental
Functional: develops fine and gross motor skills, integrating, muscles, nerves and brain functions (Wardle, 2001)	Deep, locomotor, mastery, object, rough and motor	Creative, Educational, Physiological, Environmental, Social
Fantasy: exploration of new role and situations through the experimentation of language, concepts, drams and emotion in a risk free environment (Wardle, 2001)	Communication, creative, deep, dramatic, fantasy, imaginative and fantasy, imaginative, role play, recapitulative.	Educational, Creative, Physiological and Social
Social: interaction with others develops notion of social rules and responsibility by sharing and co-operating	Communication, dramatic, role, social and socio dramatic, recapitulative	Creative, Educational, Social
Games with rules: develops an awareness of how to react in social situations which are controlled by rules and boundaries	Communication, locomotor, object (?) role play (?), social play,	Educational and Social

Table 3: Developing Dimension1 Play Types: Relationship between play types and development themes

Element within the space	Scoring 0 - 5
Range of fixed play equipment	**Number of pieces of equipment: climbing apparatus, spring mounted, slides, balancing beams, swings, see-saws, multi play structures** 0= none 1= one 2= two-three 3= four-five 4= six- seven 5= contains all of above
Moveable equipment	**Dependent upon the number of pieces of moveable equipment** 0= none 1= one 2= two pieces 3= three pieces 4= four pieces 5= five + pieces

Open space allowing for individual, group and team movement/ activities	**Dependent upon open space being available for free movement for individual, group and team activities** 0= none; 1= limited, physical barriers limit free movement for individual, group or team activities; 2= free movement for one of the above; 3= free movement for two of the above; 4= some free movement for all of the above; 5= no physical barriers, free movement for all of the above
Different sizes and types of spaces	**Dependent upon access to very small/private, small, medium, large, sheltered, exposed spaces** 0= none ; 1= one; 2= two; 3= three; 4= four; 5= all these types of spaces
Vegetation/ trees	**Dependent upon the variety of vegetation: visual stimulation and opportunities for interaction** 0= none; 1= minimal; 2= limited types; 3= several different types in part of site, visually stimulating or encourages interaction; 4= several different types across site, visually stimulating or encourages interaction; 5= several different types across whole or part of site, visually stimulating and encourages interaction
Landform	**Changes in landform which is stimulating, engaging and challenging** 0= no changes; 1= predominantly flat, minimal of the above; 2= some changes, minimal of the above; 3= several changes, one of the above; 4= several changes, two of the above; 5=several changes, all of the above
Loose materials	**Access to, quantity of, and opportunity to move loose materials across the site** 0= none; 1= little access; 2= very small quantities and very small, defined location; 3= small quantities or small defined location; 4= useable and movable; 5= useable and movable across the whole of the site
Natural materials such as stones, water, sand, bark, moss, leaves, mud, logs, fruit, sticks.	**Access to, number of and availability of natural materials across the site** 0= no access; 1= one type, across entire site or in areas of the site; 2= 2-3 types in confined locations; 3= 2-3 types across entire site; 4= 4+ types in confined locations within site; 5= 4+ types across entire site
Water and sand	**Access to and opportunity to engage and manipulate water and sand** 0= access to neither; 1= access to either sand or water, no opportunities to engage or manipulate; 2= access to either with opportunities to engage or manipulate; 3= access to both with opportunities to engage or manipulate; 4= access to both with opportunities to engage and manipulate; 5= access to both in more than one form allowing opportunities to engage and manipulate
Obvious physical boundaries such as fencing	**Existence of clear and rigid boundary and visual stimulation and engagement** 0= whole/part of site defined by physical boundary, neither visually stimulating or engaging; 1= whole of site defined by physical boundary, visually stimulating or engaging; 2= whole of site defined by physical boundary, visually stimulating and engaging; 3= part of site defined by physical boundary, visually stimulating or engaging; 4= part of site defined by physical boundary, visually stimulating and engaging; 5= whole site is free from rigid physical boundaries
Seating opportunities: opportunities for social interaction	**Quantity and location of seating opportunities** 0= none; 1= some, not within play area; 2= limited within play area, located around the edge; 3= limited within the play area, isolated & sporadic; 4= some throughout the site, does not encourage children to interact; 5= large amount throughout the play area
Range of surfacing materials: including grass, sand, bark, gravel, rubber	**The number of surfacing materials and whether they are engaging and stimulating** 0= none; 1= one, not engaging or stimulating; 2= one or two types, engaging or stimulating; 3= one or two types, engaging and stimulating; 4= more than 2 types, engaging and stimulating; 5= 3+ types, engaging and stimulating.

Table 4: Dimension 2: Physical elements and indicative scoring

Dimension 3: Environmental characteristics of the space:

Dimension 3 allows for the refinement of the specific relationships between physical elements and environmental significance.   From the literature the following 5 characteristics were identified: enticing; stimulating; challenging; educational and inclusive. (Heseltine and Holborn, 1987, Hill, 1980 cited in Woolley, 2007 and Wilson, 2007)

Table 5 uses the five environmental characteristics of enticing, stimulating, challenging, learning opportunities and provision for all age groups and indicates how the 0-5 scoring was implemented for this third dimension.

Environmental Characteristic	Scoring 0 - 5
Is the area enticing?	**Does it have inviting entrance, no rigid site boundaries, informal oversight, accessible to adults and children, contains seating** 0= no evidence, 1= contains one of the above, 2= contains two of the above, 3= contains three of the above, 4= contains four of the above, 5= contains all of the above.
Is the area stimulating by creating a range of experiences, containing natural elements and allowing for movement?	**Allows for personal movement, movement of materials, use of senses, natural elements, access to a range of materials** 0= no evidence, 1= contains one of the above, 2= contains two of the above, 3= contains three of the above, 4= contains four of the above, 5= contains all of the above.
Is the area challenging?	**Does it contain opportunities for swinging, sliding, balancing, rocking, jumping, climbing** 0= no evidence, 1= contains one of the above, 2= contains two of the above, 3= contains three of the above, 4= contains four of the above, 5= contains all of the above.
Are there learning opportunities?	**Opportunities for access to natural elements and for manipulation or experimentation** 0= no evidence 1= limited opportunities to interact with materials or the natural environment and does not allow for any kind of manipulation or experimentation, 2= access to a few types of materials, but limited access to the natural environment, and allows for either manipulation or experimentation, 3= Access to a few types of materials, some access to the natural environment, and allows for either manipulation or experimentation on one area of the site 4= Access to a large range of materials, the natural environment and allows for manipulation and experimentation in more than one area of the site 5= Access to a large range of materials and the natural environment and allows for manipulation and experimentation across the whole site without restrictions
Is the area available for all age groups	**Provides for under 3 year olds, 3-6 year olds, 6-9 year olds, 9-12 year olds, 12+** 0= no evidence, 1= caters for one age group, 2= caters for two age groups, 3= caters for three age groups, 4= caters for four age groups, 5= caters for all age groups

Table 5: Dimension 3: Environmental characteristics and indicative scoring

Testing the evaluation tool on 10 sites

The evaluation tool, consisting of the three dimensions, was tested on 10 sites in the East Midlands of England. The three dimensions and related score sheets were used on each site to establish a score for each dimension of each site and the results are now reported.

Dimension 1: Opportunities for Different Types of Play

From the literature, it was apparent that during play, children need to be able to engage in different types of activities because each stimulates and advances different developmental requirements. It was therefore proposed that the environment, which supports the most types of play, would have a greater play value. The scores for opportunities for different types of play on the 10 sites are indicated in table 6. It can be seen that some spaces only cater for one type of play while others provide opportunity for 2, 3, 4 and the maximum of 5 types of play.

Types of Play:	Site 1	Site 2	Site 3	Site 4	Site 5	Site 6	Site 7	Site 8	Site 9	Site 10
Constructive						X		X		
Functional	X	X	X	X	X	X	X	X	X	X
Fantasy			X			X	X	X	X	X
Social	X		X	X		X	X	X	X	X
Games with rules	X		X	X		X	X	X	X	X

Table 6: Dimension 1 Play Value: Scores for opportunities for different types of play on 10 sites

All of the sites contained elements which supported functional play, but only half provided opportunities for more than a nominal amount of social play and games with rules. Sites 3, 7, 9 and 10 provided opportunities for four different play types, while sites 6 and 8 provided for all of the five play types.

Dimension 2: Physical Elements:

 From the literature, variety was regarded as an important indicator in determining play value because the use of numerous elements and multiplicity of parts enhance the physical, emotional, social, educational and environmental development of children. It is therefore contended that the types of play environments, which offer the user access to the most variety of these elements will have the greatest play value.

The scores for the physical elements of the 10 sites are indicated in figure 2. It can be seen that the scores ranged from 17 to 51, out of a possible 60.

Site Number	1	2	3	4	5	6	7	8	9	10
Points Awarded	19	16	30	19	17	51	29	30	36	28
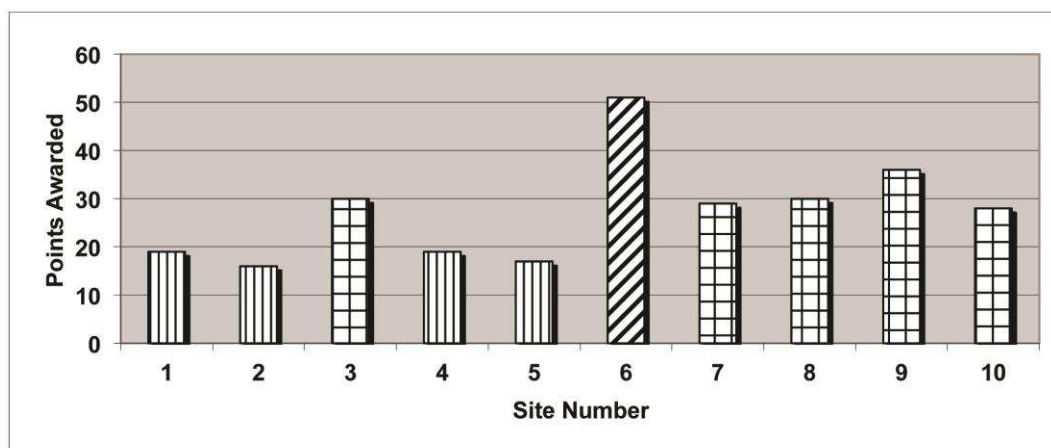
Figure 3: Dimension 2 Physical Elements - Graphic representation of the results of 10 sites

From the assessment three distinct groups were apparent within the scoring as can be seen in figure 3. Four sites scored between 0-20 (vertically striped), 5 sites scored between 21-40 (hatched) and 1 site scored between 41-40 (horizontally striped). These three groups will now be discussed in turn.

Figure 4: A Kit Fence Carpet playground with physical element score in the range 0-20

Sites 1, 2, 4 and 5 (vertically shaded on Figure 3), occupied the lowest banding with totals ranging from 16-19 out of a possible 60 points. These were primarily characterised by 4 to 6 types of fixed metal play equipment, with little or no access to vegetation, topographical variations or loose materials and were defined by rigid and unresponsive boundaries. From the literature these sites can be classed as being primarily KFC in approach. An example of the size and style of these sites is shown in figure 4.

Site 6 (diagonally hatched on figure 3) was rated the highest with a total of 51 out of a possible 60 points. It was characterised by 7 different types of wooden play equipment, an integrated network of topographical features, with access to some loose materials and not defined by a restrictive or unresponsive barrier. Based on the interpretation of the literature this site can be classed as an example of a more naturally designed play space. As figure 5 shows site 6 contained a number of natural and interactive elements typified by the boundary treatment, consisting of a water canal, which could be used to enhance play rather than restrict it. However it must be acknowled that site 6 was a large play space which provided the capacity for a greater number of play opportunities than the other sites.

Figure 5: A more natural space within physical element score range 41-60

Between these two groups, were sites 3, 7, 8, 9, and 10, with totals ranging from 28-36, shown cross hatched on Figure 3. These sites typically contained 4-6 types of fixed metal equipment, with some access to vegetation, loose materials and topographical changes. These could be considered to be hybrid in design because they contained elements which could be labelled as both traditional and

natural. For the purpose of this study this approach will be referred to as a composite design and an example is shown in figure 6.

Figure 6: A composite site within score range 21-40

Dimension 3: Environmental Characteristics

This dimension evaluated a site's play value in terms of its environmental characteristics, which are considered to relate to the physical elements outlined in dimension 2. According to the literature the play environment should be enticing, stimulating, challenging, educational and inclusive (Heseltine and Holborn, 1987; Hill, 1980 cited in Woolley, 2007 and Wilson, 2007). The assertion is that the play space design which offers the most of these key qualities will have the greatest play value.

The scores for the environmental characteristics of the 10 sites are indicated in figure 5 and show a range from 10 to 23, out of a possible total of 25.

The results for dimension 3 appear to follow a similar pattern to that of the physical elements of dimension 2, with a relationship between the types of design. Sites 1, 2, 4 and 5 (vertically hatched on figure 7) again were ranked the lowest, with a scoring range of 10-12, while site 6 (horizontally hatched on figure 7) scored the highest with 23 points. Sites 3, 7, 8, 9, 10 (cross hatched on figure 7) were again ranked between these levels, typically scoring between 15 and 18 points. It would also appear that the more physical variety contained within a play space the more enticing, stimulating, educational, challenging and inclusive a play space is considered.

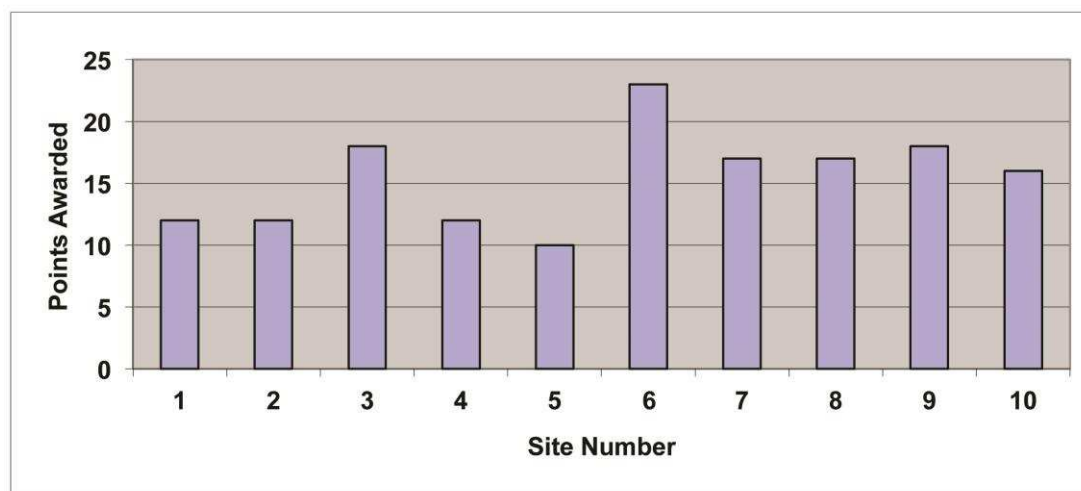| Site Number	1	2	3	4	5	6	7	8	9	10
Points Awarded	12	12	18	12	10	23	17	17	18	16

Figure 7: Dimension 3: Graphic representation of Environmental Characteristics of 10 sites

Discussion of the results from the three dimensions of play types, physical elements and environmental characteristics of an outdoor play space

All of the 10 sites surveyed contained opportunities for functional play, primarily through the inclusion of specific types of play equipment, allowing for physical development. The more natural sites included other elements able to support physical play, such as changing and challenging topography. Despite this only 2 of the sites contained elements such as loose and natural materials such as water and sand, supporting constructive play. Opportunities for fantasy play were confined to the more natural play sites, because these spaces characteristically provided for a larger variety of elements that could aid this type of play. Moving parts, loose materials and interesting and challenging topographical changes are crucial in supporting fantasy play.

Eight sites provided potential for some social play and games with rules, which the literature suggests are heavily linked. Here, the size of the site appeared to be more of a determining factor than the overall design approach. However, the more natural sites did tend to provide for smaller scale social interaction, because these sites incorporated the use of small and private spaces, rather than just large open and exposed areas. The overall trend appears to show that more natural spaces contain more opportunities for different types of play. Nevertheless, it is acknowledged that even within similar styled sites there were variations in the amount of opportunities offered.

Similarly, to play types the sites with the lower scores for both physical elements and environmental characteristics were found to have the lowest play value, and were typified as being KFC in approach. In the same way the sites with the highest scores for physical elements and

environmental characteristics provide for more play value; these sites are typically more 'natural' in their design style.

Conclusion

Findings from the use of the tool

The purpose of this research was to draw upon a range of multi-disciplinary literature to develop a tool which might be able to explore the relationship between the play value and design of an outdoor play space and to test the tool on a series of sites in England. The tool developed included three dimensions of play value, physical elements and environmental characteristics and appears to have been able to be applied to the sites identified.

Underlying the three dimensions of the tool are the opportunities for environmental, physiological, creative, educational and social development which the sites offer. Environmental development was supported on two sites containing elements supporting constructive play and two sites with sand as surfacing. The eight sites with rubber surfacing were unresponsive and often visually dull. Overall there was a failure across KFC and some composite sites for manipulation and interaction with the environment. Physiological and creative development could be supported on the more natural sites which suited different ages of children and had loose materials or landform. The KFC spaces were primarily based around fixed play equipment which contributed to physical and social development at the expense of fantasy, creative and fine motor functioning. Sites with more natural elements were also ranked better for sensory experiences containing natural and loose materials whereas KFC sites were ranked lower for sensory experiences because they did not include elements that stimulated the senses. With respect to educational and social development nine of the sites contained access to only one type of movable equipment, usually in the form of moving equipment attached to fixed equipment.

The research has revealed that, in general, certain characteristics underlie the different approaches. The KFC sites scored at the low end of the Physical Characteristics score line of 0-60. These spaces relied more heavily on, often brightly coloured, fixed play equipment and were accompanied by poor environments for stimulating children's experiences and sensory stimulation together with less access to vegetation. They were also dominated by rubber for ground surfacing. These provided for physical and social play but less for fantasy, creative play and fine motor development. The more natural sites tended to have higher scores on the Physical Characteristics score line of 0-60. They were characterised by more access to natural and loose parts and materials such as sand - sometimes as the surface material - water and vegetation. They often also contained

fixed play equipment. These sites provided not only for physical and social play but also more for fantasy and creative play, sensory stimulation and fine motor development.

Despite the small sample size there was evidence of three design approaches: the KFC approach accounting for 4 of the sites; the more natural approach accounting for 1 of the site and what we shall call a 'composite' approach accounting for 5 of the sites. The results of the use of the three dimensional tool indicated that the lowest play value was found in the KFC play spaces and the greatest play value in the more natural play spaces. However, as all of the sites were rated as having some play value, it is suggested that play value and design maybe be grouped and graded upon a continuum, as shown in Figure 8. From the results of this research the continuum of design is based upon the premise that the more natural the design approach the greater the play value of the outdoor space.

Design Type:	Traditional/KFC	Composite	Natural
Play Value:	0-------------▶---------------20---------------▶---------------40---------------▶-------------60		

Figure 8: Scoring indicating a relationship between play value and design continuum

Figure 8: Scoring indicating a relationship between play value and design continuum

Reflections on the tool itself

This tool was a first attempt by the authors to develop a mechanism to evaluate the play value and design of an outdoor play space. On reflection of the use of the tool there are a range of issues to be taken into account as this research continues. These include a need to reflect on the scoring of the individual dimensions as well as whether there would be benefit in not giving equal weight to the three dimensions. In the physical dimension some aspects were graded by the number of elements the play space contained. This was the case for play equipment and meant that smaller spaces might be at a disadvantage, and this may account for the high score achieved by site 6. However this may be countered to some extent by the other two dimensions which need to be high in order that a high scored can be achieved, no matter what the size of the play space.

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