Children, Youth and Environments 28(2), 2018

From Policy to Play Provision: Universal Design and the Challenges of Inclusive Play

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Citation: Lynch, H., Moore, A., & Prellwitz, M. (2018). From policy to play provision: Universal design and the challenges of inclusive play. *Children, Youth and Environments, 28*(2), 12-34. Retrieved from http://www.jstor.org/action/showPublication?journalCode=chilyoutenvi

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Abstract

Outdoor environments for children are important sites for social inclusion and play. In the European context, outdoor play provision is typically governed by regional or national policy and informed by international conventions that specifically state that inclusive environments must be made available for all children for their rights to be met. Specifically, universal design is proposed as a way to achieve this goal. However, little is known about national play policy in general, nor the extent to which universal design informs local play provision. This paper focuses on a review of play policy and guidelines carried out in 18 European countries and a national universal design study in Ireland in 2018. Findings identified an overall lack of play policy internationally, and when policy exists, universal design is under-represented. The potential application of the seven principles of universal design to playgrounds is discussed alongside play value principles to maximize successful playspace design. Further exploration of the child's voice in designing for play is warranted to strengthen socio-spatial inclusion and diminish the poverty of experience that many children with disabilities experience in their communities.

Keywords: children with disability, accessibility, play policy, inclusive design, universal design

Introduction

Outdoor environments for children are important sites for social inclusion and play. Outdoor environments for play are particularly significant when children grow out of infancy and become more independently mobile. Children who are independently mobile are known to utilize multiple outdoor sites for socializing and playing: parking lots, derelict sites, footpaths, beaches—and of course, designated playspaces such as playgrounds (Lynch, Moore, Edwards & Horgan, in press). However, not all children have the freedom or capacity to access such opportunities on an equal basis to other children. This is most obvious in relation to children with disability and their families, who speak of the physical and social barriers to participation, and the resulting sense of exclusion (Casey, 2015; Jeanes & Magee, 2012; Prellwitz & Skar, 2016). A scoping review of international research on playground usability and accessibility identified that the problem relates most specifically to the lack of inclusive playspaces in community settings (Moore & Lynch, 2016). In effect, this is an issue of socio-spatial exclusion that requires a reframing of playground design as "the architecture of social participation" (Steinfeld & Maisel, 2012, p. 21).

However, this is not just a disability issue; public spaces are increasingly controlled and governed for children by adults, and spaces for play are diminishing overall (UNICEF, 2007). This issue has been noted in interdisciplinary research with researchers coining terms such as "play deprivation" (Bundy et al., 2011), and talking about "poverty of experience" in relation to restricted opportunities for play (Welsh Government, 2014). The implications for children are worrying, as play is known to be fundamental to children's health, well-being, and development, and important for their resilience and happiness. Consequently, there has been increasing attention to the provision of outdoor play: examining how public spaces are conceived, designed, and provided; establishing how child-centered the process and product is; and establishing an evidence-based, space-oriented approach to play policy development (Gill, 2008).

An important starting point when considering good design for play is to identify what a "good" playspace is. This is a complex and challenging problem. First, play itself needs to be defined, but it is an accepted fact that there is no agreed-upon definition of play (Committee on the Rights of the Child, 2013). This is due, among other things, to the interdisciplinary nature of play research. Play is typically defined according to the lens of the discipline, so for example psychologists consider play from the cognitive perspective of child development, while a human geographer might consider play as a social construct and focus more on the current rather than future child (Woolley, 2013). Overall however, there is a consensus that play typically involves freedom of choice, which is intrinsically motivated, and personally directed, with no external goal (Bundy, 1997). Play involves self-mastery and challenge, so children need more complex challenges for play in their environments as they become more skilled. Yet play is also highly linked to personal and contextual factors such as personal or family preferences (Moore & Lynch, 2018). Outdoor play in particular has been identified as being characterized by playing freely, with higher levels of physical activity play than indoor play (Pellegrini & Smith, 1998; Stephenson, 2002). A good playspace therefore needs to

be designed to provide good quality play experiences, and to provide affordances for varied forms of free play that incorporate challenge, stimulation, personal preferences, and fun. In summary, from an evidence-based design approach, outdoor public spaces for children need to be high in "play value" (Lynch, Moore, Edwards, & Horgan, in press; Woolley & Lowe, 2013).

Once play value is established as the fundamental goal, the issue of designing for inclusive play comes to the fore. International conventions such as the 1989 UN Convention of the Rights of the Child (UNCRC) present the concept of universal design in public play provision as the way forward. Yet to date it is unclear the extent to which universal design has been adopted and operationalized in relation to outdoor play provision. This subject warrants greater examination and was identified as a focus of concern among our colleagues from the European Ludi network. Ludi was a COST Action programme (TD1309, 2014 – 2018), linking over 100 collaborators (researchers, play advocates and practitioners) from 32 European countries who specialize in play for children with disabilities (Besio & Carneshechi, 2014). The overall aim of Ludi was to establish a cohesive network of play experts to systematize play research for children with disabilities. A key Ludi objective was to increase the impact of play research on policy makers to drive change. One collaboration project initiated in the Ludi network was a 2016-2017 review of play policy in Europe that aimed to describe existing play policy and identify guiding principles for inclusion and universal design. In subsequent research funded by the Irish Centre for Excellence in Universal Design (CEUD) in 2017-2018, a national project was conducted in Ireland to examine universal design in relation to playspaces. The project included a review of guidelines for playspace design, playspace audits of five local playgrounds in one municipality in Ireland, and interviews with children and adults of varied needs and abilities.

This paper is informed by both projects and will present a specific focus on universal design in the context of outdoor playspaces for children with disabilities. The paper is presented in three sections. Section one presents the international policy context and universal design. Section two provides an overview of play policy in the European context, drawing from a national survey conducted with members of the Ludi COST Action network. Section three draws from the CEUD project. It presents a discussion on universal design as it translates to playground provision and identifies some challenges and considerations that can contribute to best practice.

The International Policy Context and Universal Design

Prior to exploring the international policy context, it is important to first outline the authors' perspective on disability, as this can mean different things to different people. This paper adopts the Ludi approach to disability, which was informed by the United Nations Convention on the Rights of People with Disability (UNCRPD):

> *Persons with disabilities include those who have long-term physical, mental, intellectual or sensory impairments which in interaction with various barriers may hinder their full and effective participation in society on an equal basis with others,*

and also:

> *disability is an evolving concept… [that] results from the interaction between persons with impairments and attitudinal and environmental barriers that hinders their full and effective participation in society on an equal basis with others* 2006, preamble, p. 4).

From this perspective, the environment is noted to be a significant factor in preventing or promoting play (Bianquin & Bulgarelli, 2017).

The right to play and the right to access the physical environment (including environments for play) is recognized as a fundamental human right of all children in the UNCRC (United Nations, 1989) and further reinforced in the UNCRPD (United Nations, 2006). Both documents establish the rights of the child to participate in community contexts on an equal basis to others, with equal access to participation in activities, including play. According to the UNCRPD, universal design:

> *means the design of products, environments, programmes and services to be usable by all people, to the greatest extent possible, without the need for adaptation or specialized design. "Universal design" shall not exclude assistive devices for particular groups of persons with disabilities where this is needed* (Article 2, p. 4).

Notably, both conventions on international rights are intended to inform each other and be used interdependently. However, problems in operationalizing these rights became apparent, resulting in the development of General Comment No. 17 on play and leisure (Committee on the Rights of the Child, 2013) and General Comment No. 2 on Accessibility (Committee on the Rights of Persons with Disabilities, 2014). These General Comments expanded on issues of environmental access, and foregrounded universal design in particular. In General Comment No. 2, the use of universal design is established as a fundamental consideration for any new goods or facilities to ensure access for all and to make society accessible. Concurrently, General Comment No. 17 integrates universal design as a way forward for ensuring communities are inclusive in their approach to play provision:

> *Investment in universal design is necessary with regard to play, recreational, cultural, arts and sports facilities, buildings, equipment and services, consistent with the obligations to promote inclusion and protect children with disabilities from discrimination. States should engage with non-state actors to ensure the implementation of universal design in the planning and production of all materials and venues, for example… inclusive design for play environments, including those in schools* (CRC, 2013, para. 56(e), p. 21).

Universal Design

As initially perceived, universal design was focused on making products and environments usable by everyone (Mace, 1985). Universal design is often used interchangeably with accessible design, design for all, barrier-free design and

inclusive design (Goltsman, 2011). However, universal design is distinctive as it is underpinned by seven principles (Connell et al., 1997) that aim to examine existing designs, guide the design process and act as a source of information on designing more usable products and environments. More recently, eight goals of universal design were developed by researchers at the Center for Inclusive Design, University of Buffalo, USA, to update the principles and clarify universal design concepts. These eight goals address aspects of human performance, health and wellness, social participation, and cultural and contextual issues (Steinfeld & Maisel, 2012). While the principles and goals of universal design are useful, they offer only a starting point. Ongoing exploration of the potential of universal design and its applicability in community contexts provides the possibility of a design approach that is inclusive for all (Goltsman, 2011; Steinfeld & Maisel, 2012)—in effect, a way to design for social participation.

Despite the promotion of universal design in international conventions, little is known about the extent to which universal design is integrated into national policy or how it informs local play provision. Therefore, these researchers sought to explore the gap in knowledge around European play policy, universal design and inclusive outdoors play environments.

From Policy to Play: Why Review Play Policy?

Policy plays a crucial role in the organization of society, as it provides a framework for putting rights into practice. However, in many countries, children's priorities do not readily translate into national policy. For example, in Ireland, when children are asked what matters to them, they consistently rate play as one of the most important aspects of their lives (Kilkelly, Lynch, O'Connell, Moore, & Field, 2016). Yet, Ireland's Children's Strategy (Department of Children and Youth Affairs, 2014) and the Getting Ireland Active program (Department of Health, 2016), prioritize sports and exercise rather than play. One key problem is that these documents use data on sports and exercise to inform policy, from data sets (such as the Health Behaviour of School-Aged Children Project by the World Health Organisation, http://www.hbsc.org/) that do not include questions specifically about play. Therefore, data on play is not widely gathered. This has resulted in, for example, national action plans to increase physical activity in early childhood instead of increasing play opportunities. Such policy reflects an adultist perspective that values engagement in physical activity to improve health outcomes, which although important, disregards what is important to children.

This adult-centered approach to policy development has a consequence: play continues to be invisible in policy, often subsumed under other priorities, which can diminish the likelihood of adults valuing play as pivotal to children's well-being (Lynch & Moore, 2016; Moore & Lynch, 2018). Similar problems were noted by Voce in his analysis of the UK government's responses to implementing the child's rights to play; he found a "paucity of interest in children's right to play within current political debate" (2015, p. 159). Not surprisingly perhaps, there appears to be a subsequent lack of policy for providing inclusive play opportunities in UK communities. In a scoping review of international research on playgrounds, the lack

of play-related policy was identified as a significant barrier to providing inclusive playgrounds for all children (Moore & Lynch, 2016).

In the absence of policy, social exclusion can be magnified. Public playgrounds can perpetuate marginalization and exclusion through inadequate access, poor play value, and limited opportunities for social interaction (Burke, 2012; Jeanes & Magee, 2012; Lynch et al., in press; Olsen & Dieser, 2012; Potwarka, Kaczynski, & Flack, 2008; Prellwitz & Skar, 2007; Prellwitz & Tamm, 1999). Uninformed playground design can also add further barriers. For example, Dunn and Moore (2005) noted that segregation was an outcome when special playground equipment to accommodate wheelchair-users is provided. In contrast, when playgrounds are designed following principles of universal design, equipment is chosen with the intention that multiple users can play together. This opportunity is highly valued by children with disabilities and their families (Jeanes & Magee, 2012).

So, in relation to policy, play appears to be a forgotten right in many countries. The consequences of this specifically for children with disabilities is unknown, as this is a significantly under-researched area.

Exploring National Play Policy in Europe

Policy can be defined as formal documents issued or commissioned by national governments that identify strategies, priorities, goals and objectives (Daugbjerg et al., 2009). For this review, we use "national policy" as a general term to apply to any policy document on play that was adopted at a national level in each country. The purpose of this review was to first determine the existence of national play policy documents in Europe, then to examine whether universal design, as a design concept, is considered within these national play policy documents. Our aim is to determine what is considered best practice in play policy in relation to play for children with disabilities and social inclusion.

Method

Design

This study used a survey design to gather information from across Europe on the existence of national policies for play. The survey was designed as an online survey and uploaded to an internet survey site (Survey Monkey), which provides anonymity for participants. The survey was distributed through the Ludi Play for Children with Disabilities COST Action network. Respondents were invited to confirm their consent by continuing to complete the survey.

Sample

The sample for this study was chosen using convenience sampling. Participants were eligible for inclusion if they were members of the Ludi COST Action network from any of the 32 European countries. Participants included psychologists, occupational therapists, educators, engineers, and toy designers.

Instrument

Survey content focused on eliciting information regarding national play policies. The final instrument consisted of 10 questions relating to the national policy context in each country, including the identification of national government departments responsible for children's play, national play policies, universal design, and social inclusion. The survey was pilot-tested with a convenience sample of three participants to test for clarity and potential online operational issues.

Procedure

An email was sent to representatives from European countries (n= 32) in July 2017 outlining the aims of the study together with a link to the online survey. A reminder was sent on two occasions over a two-month period for those who wished to participate but had not already done so. Initial findings from the survey were presented to the Ludi COST Action network meeting in Gdansk in September 2017, to further prompt members who had not yet participated to do so and thus maximize the response rate. The survey closed December 2017. We included all returned surveys (n= 18) in the analysis.

Results

In total, 18 members of the Ludi COST Action network completed the survey, representing a 56.3 percent response rate. First, respondents were asked to identify all government departments responsible for children's play in their country. Respondents listed multiple government departments including the departments of Education (50.0 percent), Children and Youth (38.9 percent), Social Inclusion (27.8 percent), and Health (16.7 percent). In addition, more than half of the respondents (61.2 percent) listed "Other," which included departments of the Environment, Family and Social Politics, Federal Ministry for Traffic, Facility Management and Urban Development, Child Protection, and Building and Planning. What was obvious from the responses was that children's play was an inter-departmental responsibilityThe challenges of prioritizing funding for play across departments that have multiple competing demands may in part explain the significant lack of investment in play internationally at governmental levels. The fact that play is distributed across departments is also likely to contribute to a continued fragmentation of the considerations required to protect and promote children's rights to play (Committee on the Rights of the Child, 2013).

Respondents were asked whether their country had a national play policy. Two respondents (11.1 percent) stated that their country, currently or in the past, has a national play policy (Ireland and the United Kingdom). One respondent (United Kingdom) identified play policies from each of the four jurisdictions of the United Kingdom (Scotland, Wales, Northern Ireland, and England). Both the Ireland and the United Kingdom respondents noted that children with disabilities are referred to in these policy documents. Although all five policy documents included a focus on accessible playspaces, universal design specifically was only evident in Ireland's policy.

In the knowledge that play is also commonly associated with non-government organizations (NGOs), respondents were asked to comment on organizations

responsible for the development of national play policies or guidelines for children's play in their respective countries. Six respondents (33.3 percent) reported that NGOs had a key role in their countries, listing organizations that work with children to support play (for example, Speeltuinbendewijzer in the Netherlands).

Many respondents reported difficulty in locating information for their own country to respond to the survey. For example, one respondent (United Kingdom) reported that they could not identify which department was responsible for play, while the respondent from the Netherlands stated that no government department mentions play in their policy documents. In other cases (Malta and Portugal), respondents reported that local councils were required to provide for play in urban planning. Overall, the survey shows that there is a lack of clarity in many countries on who is responsible for play policy at the national government level.

In the absence of national play policies, respondents were asked to identify other national policy documents that include children's play (for example, anti-discrimination policy). In Estonia, the right to play is included in the Child Protection Act, while in Sweden, it is evident in the Swedish Building and Planning Act. Six respondents (33.3 percent) confirmed that their country did have some policy in relation to universal design or accessibility. However, these policies were typically related to the accessibility of public buildings rather than providing guidelines for playgrounds. The remaining 12 respondents (66.7 percent) indicated that their country has no national accessibility or universal design policies for playspaces. When asked in general about the existence of any national policy or guideline related to the inclusion of children with disabilities in designing for play, only Germany responded "yes"; however, upon review, it was determined that this was a policy around child participation in general, and not specifically focused on play.

Table 1 presents information provided by respondents, with the cautionary note that although respondents had expertise on play (through practice or research), and were representatives of their respective countries, many were unable to answer the questions relating to the existence of play policy and universal design in their own countries. This is likely a reflection of the invisibility of play in policy at a national level across Europe.

Table 1. Overview of information gathered on play policy across 18 European countries

	Bulgaria	Estonia	Germany	Iceland	Ireland	Italy	Malta	Netherlands	Poland	Portugal	Romania	Serbia	Spain	Sweden	Switzerland	Turkey	Former Yugoslavian Rep. of Macedonia	United Kingdom	Total: n (%)
*What **national** Government department is responsible for children's play? (Tick all that apply)*																			
Education				✓			✓			✓	✓		✓	✓	✓	✓	✓		9 (50.0)
Children and Youth			✓		✓		✓		✓			✓			✓		✓		7 (38.9)
Social Inclusion		✓		✓						✓					✓		✓		5(27.8)
Health				✓											✓				2 (11.1)
Other	✓		✓	✓		✓		✓										✓	6 (33.5)
*Does your country have a **national** play policy for children's play?*																			
Yes					✓													✓	2 (11.1)
No	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		16 (88.9)
*If your country has a **national** play policy, are children with disabilities mentioned?*																			
Yes					✓													✓	2 (11.1)
No																			0 (0)
Not Applicable	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		16 (88.9)
*Does your country have a **national** policy or guideline for children's involvement in designing for play?*																			
Yes			✓																1 (5.6)
No	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	17 (94.4)
*Does your country have **national** universal design/ anti-discrimination policy or guidelines for play provision? (e.g. for playgrounds)*																			
Yes						✓	✓	✓	✓						✓			✓	6 (33.3)
No	✓	✓	✓	✓	✓					✓	✓	✓	✓	✓		✓	✓		12 (66.7)
*Does your country have a **national** website for play? (e.g. Play England)*																			
Yes					✓													✓	2 (11.1)
No	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		16 (88.9)

To summarize, the majority of respondents' countries (88.9 percent) did not have a play policy. In addition, the majority of respondents (94.4 percent) reported that their country did not have any national policy or guideline for children's involvement in designing for play. With regards to universal design, 66.7 percent of respondents confirmed that their country did not have a national policy for universal design for accessible play provision. Moreover, all respondents who answered this question confirmed that there were no specific universal design guidelines for playspaces in their countries. Overall, the survey confirmed that few national policies exist in the European context that address children's play, the inclusion of children in designing for play, or the provision of inclusive play through universal design.

The researchers conducted further analysis of the relevant national play policy documents identified in the survey. We excluded documents that were not developed by a government administration or did not involve a specific focus on play. Play policy from two countries (consisting of five policies from the four jurisdictions across the UK, and one for Ireland) were reviewed for content on universal design and accessibility (Department for Children, Schools, and Families, and Department for Culture, Media and Sport, 2008; Minister for Health and Social Services, 2002; National Children's Office, 2004; Office of the First Minister and Deputy First Minister, 2009; Scottish Government, 2013; Welsh Government, 2014) (Table 2). Only one of these countries had developed legally binding documents for play provision: The Wales Play Sufficiency Statutory Guidance (Welsh Government, 2014). Consequently, both the Wales Play Policy (and accompanying implementation plan) and the Wales Play Sufficiency document were reviewed in tandem.

Table 2. Information on play policies across five countries/ jurisdictions

Country	Jurisdiction	Document Title	Year Published	UNCRC Ratified	Dept Responsible for Play Policy	Pages	Universal Design
Ireland		Ready Steady Play! A National Play Policy	2004	1992; play policy underpinned by UNCRC	National Children's Office	71	Incorporates universal design concept and 7 principles
United Kingdom (UK)	Scotland	Play Strategy for Scotland: Our vision	2013	UK ratified in 1991; All play policies underpinned by UNCRC	Scottish Government	24	No mention
	Wales	Welsh Assembly Government Play Policy (Statement) Implementation Plan 2006	2002		Minister for Health and Social Services	2; 24-page implement -ation plan	No mention
		Wales – a Play Friendly Country: statutory guidance	2014		Welsh Government Ministry for Children and Young People	42	No mention
	Northern Ireland	Play and Leisure Policy Statement (Plan) (2009); Implementation Plan Narrative (2010)	2009		Office of First Minister and Deputy First Minister	14-page statement; 16-page implement -ation plan	No mention
	England	The Play Strategy (first national play strategy for England)	2008		Department for Children, Schools and Families; Department for Culture, Media and Sports	82	No mention

Of note, there was a significant difference in what constituted a play policy across these six examples. For Ireland, the Play Policy was a 72-page document outlining principles, goals, and national action planning. In contrast, the smallest play policy was one from Wales, which consisted only of a statement outlining the government's vision. Results show that although all six policies were developed after each country had ratified the UNCRC, no attention was given to universal design of playspaces in the five UK policy documents. In these UK documents, the principle of having accessible playspaces was central, but without any direction on how to design from a universal perspective for inclusion. However, in Ireland, universal design was specifically presented as the way to inform inclusive design: the policy outlined the seven principles of universal design, and an action identified that "all new and redeveloped local authority play facilities will be developed to be accessible in accordance with universal design principles and best practice" (National Children's Office, 2004, p. 48).

In subsequent research for the CEUD project that we conducted from 2017-2018, we reviewed 21 international guidelines for inclusive playspaces. This analysis identified few guidelines that have incorporated a universal design approach. In addition, the guideline review identified several issues including inconsistent use of the terms *accessibility*, *inclusion* and *universal design*, and the inconsistent application of the principles of universal design, if they were considered at all. Even when a universal design approach was mentioned, the seven principles were not typically outlined. This should not imply that universal design has no place in guiding design for inclusion. Instead, it is importantthat possibilities for incorporating universal design be further explored. Consequently, the final section of this paper explores the integration of play value principles with the seven principles of universal design.

Connecting Play Value and Universal Design

Taking on the challenge of applying universal design in designing for play is an important endeavor if we are to move forward in establishing good practice in inclusive playground provision. This section presents each of the seven principles of universal design (Connell et al., 1997) mapped to play principles in order to maximize the potential partnership of universal design and play value. The aim of this section is to set out some ideas about how universal design can guide best practice in playspace design, but also to identify potential gaps in application that need further investigation.

Principle 1: Equitable Use

Equitable use is about providing everyone with the same means to use the environment, such as an identical entrance for everyone into a playground. This becomes a challenge, however, when applied to a playground component that needs to be designed for high play value for challenge and fun. First, the aim is to avoid segregation or stigmatizing design. Playground designers have developed ways to do this by providing multiple routes to the top of an elevated component, so all children can find a way to get there. However, local playgrounds that were audited in the CEUD project were not always designed for equitable use. Although there were multiple ways to access elevated play equipment (for example, stairs,

walls, frames, ropes), there were typically no alternatives for children that were unable to climb (for example, a ramp). This resulted in children with disabilities not being able to access the highest point in the playground, which resulted in children feeling excluded: "I'm not able to go on stuff… I just look at them and that's not good for me… it makes me feel odd" (girl with physical disability, age 9).

To maximize play value, there should always be challenge present in playgrounds, and therefore it is neither possible nor desirable to make every piece of a playground fully usable given people's different ages and abilities; successful playgrounds need to combine equitable use with challenge. So, equitable use can be integrated with play value with the following consideration in mind:

There is a need to design for challenge and complexity that caters to people of different ages and abilities, resulting in equality of experience.

Principle 2: Flexibility in Use

This principle refers to the need to accommodate to different users (for example, people of different ages, abilities, sizes, genders, socioeconomic backgrounds, races, ethnicitities, and cultures) who have different preferences and abilities. For example, when the play needs of children with disabilities are considered, flexibility can involve the provision of larger play components. These components can then be used by older children, who are larger in size physically, but who still enjoy playgrounds. Another example for flexible use is to provide different sizes and types of swing seats at different heights (Figure 1). There is a need to consider multiple alternatives for children to be able to access, use, and be included in the playground to maximize potential for flexibility. The play value principle of flexibility is therefore associated with an expanded view of play preferences and styles, which incorporates considerations for different cognitive, sensory, motor, and social needs:

There is a need to design for variety in order to satisfy people's individual play preferences and play styles.

For example, Figure 1 shows an example from the CEUD project where different swing seat types are located at different heights. However, not all users can access the swings as a consequence of disability or undeveloped postural stability. Further accessible swing types could be considered, for example, bucket swings, adaptive swings with harnesses, seats with back and side supports, and wheelchair-accessible swings. Such design solutions would facilitate greater inclusion and maximize play value.

Figure 1. Flexible in use but not equitable use

Note: In Figure 1, although flexibility has been considered, equitability of access has not been; this shows the challenge of trying to incorporate all of the principles.

Principle 3: Simple and Intuitive Use

Simple and intuitive use is about maximizing the likelihood of everyone understanding how something can be used. However, the potential clash with play value is that there is little fun in playing with something that is too simple or intuitive. For example, in the CEUD study, children and adult playground users noted that playgrounds were inappropriate for older children and consequently playgrounds were determined as boring for this user group: "Not for over 10s" (girl, age 7; boy, age 10).

Simple and intuitive use is about designing for the just-right challenge; this means that the use should be obvious and easy to figure out (for example, recognizing that steps on the ladder help you get to the top of a slide and are designed for small or short children to reach). Playgrounds that are too complex can result in children requiring personal assistance by a caregiver (Lynch et al., in press). In a well-designed playground, there are places for more simple, repetitive play that offer a choice for a child who desires it. Simple and intuitive use is also closely related to affordances for play. For example, in Sweden, children with and without disabilities reported that playground equipment with recognizable designs such as houses, boats and cars did invite role-playing, and that this type of equipment was the most fun for children with disabilities (Prellwitz & Skar, 2007). The design challenge therefore is to minimize unnecessary complexity yet maximize play value. So, this play value principle speaks to the need to incorporate varied forms of play components (not just for physical activity play), and varied levels of challenge into playground design, so that children of different ages and abilities have scope to take risks and explore new ways to engage with the play components:

There is a need to design stimulating playspaces that offer opportunities for adventure and excitement.

Principle 4: Perceptible Information

Perceptible information is particularly relevant for users with visual difficulties. Bright colors that are contrasting can make a difference between participating and not; without them, an individual may not have enough information to know how to use the environment. For example, playgrounds can be built with clearly contrasting colors in the surfacing, or on play components (see Figure 2). This enables a user to know where the edge of the footpath is or demarcates the steps of a ladder. While the general aim would be to avoid design solutions specifically for use by people with disabilities, there are times when it is necessary to provide alternatives. For example, in a study with children in Sweden (Prellwitz & Skar, 2007) one child with significant visual impairment noted that while visual contrasts were helpful, they were in fact stigmatizing: "at school they put yellow and black tape on the bench in the playground and around the swing, I hated that because everybody knew it was for me, so I stopped going there" (boy age 10, with severe visual impairment). Another child said: "the school playground is too far away for me; I can't find my way to it" (boy age 7, with severe visual impairment). Another problem with some modern playground equipment, built all in one piece, was explained by a child with moderate cognitive impairment. He said; "I do not know how to use it, where to start and where to finish" (boy age 12).

Thus, when perceptible information is provided it should be sensitively integrated within the playground, so that users with disabilities can access, use, and be included in the playground in a non-stigmatizing way. The play value principle here is to maximize motivation to engage in the play opportunities available:

There is a need to design playspaces that encourage user's natural curiosity.

Figure 2 shows an example from the Prellwitz and Skar (2007) project, where there is an elaborate composite play component with good color contrast. However, not all users can access these components because of the absence of pathways leading to them. Regular and accessible pathways must lead to all climbing components in the playgrounds. Such design solutions would facilitate greater inclusion and maximize play value.

Figure 2. Perceptible information but not simple and intuitive

Principle 5: Tolerance for Error

This principle refers to the need to minimize hazards and maximize safety in design. Playgrounds are required to adhere to internationally and nationally determined safety standards. This does not mean that risk needs to be eliminated from a playground; playgrounds need to be designed to provide for risk and challenge but should not expose users to overly hazardous environments that result in injury (Brussoni et al., 2015). Tolerance for error is particularly relevant for users who tend to wander or have difficulty perceiving danger. For example, in the CEUD study, adult playground users noted that a lack of fencing resulted in playgrounds being hazardous places for younger users as well as users who have difficulties perceiving danger such as children with Autism Spectrum Disorder (ASD): "Lack of fencing… 2-year olds disappear—can't see them. Security guard retrieves small children wandering" (Mother of girl age 7 and boy age 10); or, "No sense of danger…" (father of boy with ASD, age 9).

The use of fencing around playgrounds has been noted as potentially limiting play value; however, other ways to demarcate playspace boundaries can be incorporated by using solutions such as landforms or low hedging (Woolley & Lowe, 2013). The play value principle here is to ensure that efforts to minimize hazards can be integrated with efforts to provide risk-rich play experiences:

There is a need to design risk-rich playspaces that afford users the opportunity to participate in challenging and risky behavior without being exposed to overly dangerous activities or risks.

Principle 6: Low Physical Effort
This principle is primarily aimed at ensuring that a design is usable, with minimum effort required. Yet, playful activity on playgrounds typically involves high levels of physical activity (Pellegrini & Smith, 1998). However, for children with disabilities, poor playground design can result in users have to expend unnecessary effort to access or use the playground, leaving little to no energy left for playing. Playspaces need to be designed so that getting to the playground and to the places where children are playing do not require having to exert all one's energy. For example, in a study with children in Sweden (Prellwitz & Skar, 2007), one child with a physical disability described how her friends would sit on the swings in the playground and how embarrassing and tiresome it was for her to have to leave her wheelchair by the entrance and crawl to the swings: "I do it because once I get there the other girls will talk to me, but I try to get there before the others" (girl, age 10).

Thus, there is a need to consider multiple alternatives for all children to be able to access, use, and be included in the playground; if there are inappropriate routes for children to access play equipment they inevitably either cannot use it or must expend too much effort getting to it, which does not reflect the philosophy of universal design. The play value principle therefore is about avoidance of unnecessary fatigue:

There is a need to design playspaces to provide for active play, while minimizing unnecessary fatigue.

Principle 7: Size and Space for Approach and Use
This principle specifically refers to design features that incorporate different sizes and spaces for accessing and using environmental components, regardless of a user's body size, posture or mobility. Given that playgrounds are accessed and used by people of different ages, abilities, and sizes, there is a need to design for appropriate space for approach, reach, manipulation and use for all users. This can take the form of integrating spaces for assistive devices beside a play component, or bars and steps of varied sizes (Figure 3). In the study in Sweden, many of the children with cognitive disabilities explained to the researcher that most of the playground equipment was too small for them to use (Prellwitz & Skar, 2007). However, if playgrounds are looked upon foremost as a social environment, there is a need to make sure that places where children like to be are big enough that they have space to interact. Talking to peers was the thing that children both with and without disabilities described that they did on the playground. This means that creating meeting places is of great importance (Prellwitz & Skar, 2007). Therefore, the play value principle here is about facilitating participation:

There is a need to design playspaces that offer appropriate size and space to accommodate everyone and facilitate participation in the play space.

Figure 3 is an example from the CEUD project, that shows different climbing components to accommodate users of different skill level. However, not all users can access these climbing structures as a consequence of disability or undeveloped climbing skill. Further accessible routes (for example, ramps), foot supports and

accessible handgrip handles (on the climbing wall) that accommodate users of different sizes and abilities could be considered so that all users can access the highest point in the playground. Such design solutions would facilitate greater inclusion and maximize play value.

Figure 3. Size and space for approach and use but not low physical effort

To summarize, in mapping out each of the seven universal design principles alongside play value principles, some potential applications have been explored. The general aim is to avoid design solutions specifically intended for use by people with disabilities to prevent the creation of separate or stigmatizing environments. However, this warrants further exploration from the user's perspective, as families of children with disabilities have rarely been involved in researching their preferences on this issue. For example, in the CEUD study, parents of children with disabilities noted that separate design solutions were a preferred option but not available to them: "A wheelchair swing would be good…" (mother of girl age 10 with physical disability). Further examination of universal or specialized design of playspaces is needed to examine best practices for maximizing play opportunities for children with disabilities and their families.

Conclusion

The work presented in this paper emerged from the growing awareness that inclusive play design is an underdeveloped area, and play in general is rarely evident in national policy nor in political agendas (Lynch, 2017; Moore & Lynch, 2018). The results of the play policy survey uncovered a number of concerning issues. First, although all of the countries in Europe have ratified the UNCRC, few of

them have operationalized the right to play into national play policy. Only two countries have specifically developed national play policies. Furthermore, across the 18 respondent countries, none had specific guidelines on including children in the process of designing for play as recommended in the UNCRC. Finally, although universal design is stated as a way to provide for inclusive play in communities, no participating European country was noted as having national guidelines for applying a universal design approach to playground provision.

However, it is also evident that applying a universal design approach to designing for play is complex and somewhat obscure when we consider the need to also provide for high play value. To develop coherent, integrated guidelines for inclusive play requires an amalgamation of many factors beyond universal design, such as safety standards, natural design, developmental design, usability, and maintenance (Olsen, 2015). Thus, we need to continue to ask: is universal design a good approach for creating inclusive play spaces with the highest play value possible for all users? Further research is warranted to examine the application of universal design for play design more carefully. As Casey notes, "the principles of low physical effort and simple and intuitive use may be deemed to confound the desire for play features requiring progressive levels of physical exertion or offering intrigue and surprise" (2017, p. 371). Further work is needed to translate universal design principles into a design approach that ensures high play value for as many children as possible. A fundamental aspect of this agenda is to conduct research with children with disabilities as the expert users to inform best practice in design and play value.

To conclude it is clear that there is a need to develop space-oriented children's policy that specifically addresses play and playspace design as a fundamental aspect of socio-spatial inclusion (Gill, 2008; Prellwitz & Lynch, in press; Yantzi, Young, & McKeever, 2010).

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