

# Triangulation study of water play in urban open spaces in Sheffield: Children's experiences, parental and professional understanding and control

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## Abstract

As a life source water is the reason why majority of world's largest cities developed in the area where they are now and it is an aesthetic reason that influence many people and landscape architects. Although, how children experience many types of urban open spaces have been identified in the literature, evidence-based research knowledge was extremely limited about water experiences of children in urban open spaces.

The purpose of this paper is to explore what makes water features in different urban open spaces attractive to children and what opportunities or constraints influence children's ability to experience such environments. This research has adopted subject triangulation methodology and focuses on three research subjects; children, parents and professionals who designed and manages those spaces, which are three dimension of water play provision. Study suggest some striking results about children's use of water features, parental controls and allowance, and professionals' consideration.

## Keywords

Children, Urban design, Urban open space, Water play.



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## 1. Introduction

According to European Environment Agency (2010) world urban population was projected to become 70 percent of all inhabitants by 2050. However, in Europe the percentage of urban inhabitants has already passed those projections for the future. As was reported by World Bank (2016) 75 percent of European Union countries has already been living in urban areas in 2016. Furthermore, according to same data, urban living in the United Kingdom has increased to 83% of all inhabitants in 2016.

It has been estimated that at least half of the world's children live in urban areas (UNICEF, 2012) and projections illustrated that numbers are likely to increase in the future due to increasing popularity of urban living. These children need open spaces to spend time and energy and be active and fulfil their recreational needs. Children need at least 60-minute of physical activity to turn into healthy adults (WHO, 2015). Urban open spaces are the areas where children likely to play and undertake their daily physical activities. Therefore, it can be described that urban open spaces are the areas children need for the benefit of their physical and mental growth, improving their skills and extending their social barriers (NPFA, 2000; Broadhead, 2006).

Understanding children's experiences in urban open spaces is the first step towards providing better built-environment that meets children's needs. There is significant literature developed since 1970's about children's experiences in urban environments (Ward, 1977; Lynch, 1977; Hart, 1979; Moore, 1986; Moore, 1989; Chawla, 2002).

Urban open spaces are the areas where children from different backgrounds come together, which make them aware of differences among themselves and create self-awareness as well as helping creating shared identity and enhance the feeling of being citizens (Madanipour, 2003; Shaftoe, 2008; Gaffikin et al., 2010). Being with unknown children increases anonymity, which helps children to escape from their daily life (Woolley et al., 1997).

During their play children replicate the adult world that one-day they will become (Noschis, 1992). While they are replicating, children learn from each other.

However, there are several constraints that effects children's ability to play in open spaces. First, professional attitude towards children's play has not been changed in the last five decades with play provision through same structured fenced and carpeted playgrounds, although especially older children do not find them interesting (Veitch et al., 2007; Shaftoe, 2008; Woolley, 2008).

Secondly, it was identified that children's experiences in urban opens space are also limited due to social and physical limitations of urban context. Some of those limitations are physical controls, such as intentionally placed obstacles to prevent unwelcomed activities are common (Kilian, 1998; Woolley et al., 2011); physical boundaries, such as undermanaged and neglected environment, traffic and car domination, litter, and lack of maintenance are recurrent problems (Lennard & Lennard, 1992; Tibbalds, 2001); social controls such as police, ambassadors, and anti-social behaviour orders (Flint & Nixon, 2006; Nayak, 2003); social issues, such as fear of alcoholics and drug users, fear of security, stranger danger, traffic danger, child abduction and parental worries (Valentine, 1996; Woolley et al., 1999; Veitch et al., 2006).

Third, not only professional attitude but also the budget issues have been affecting the provision of better urban open spaces for children. Parks and open spaces are most affected areas from budget cuts in USA after 2008 crisis (Walls, 2014; Katz, 2006). In the United Kingdom situation was not any better. According to a recent report, 86% of park managers in the United Kingdom have affected by budget cuts since 2010; and slightly less than a half of councils had discussed selling green spaces and open spaces at one point (Neal, 2014). According Neal (2014) the future of the parks and open spaces does not seem to be very bright and there might be rapid decline in the quality of urban open spaces, if urgent action is not taken. This reduction in

the quality was estimated to take place especially in the most deprived areas of the country (Woods, 2014).

Forth, children's play is effected by parental concerns such as stranger danger, kidnapping, rapists and drug users (Blakely, 1994, Larson et al., 2013). Due to fact that play provision is oriented around parental concerns and children's wellbeing rather than child development. The outcome of this approach is sterile, over protective and uninteresting play supplies (Veitch et al., 2006). Children's play in urban open spaces has not seen a way of play provision and play policy, although children prefer challenging and loose elements that can be changed such as water, and being in the area where adults are (Francis, 1988).

## **2. Children's experiences of urban water features**

As a life source water is the reason why majority of world's largest cities developed in the area where they are now. Furthermore, water is an aesthetic concern that influences many landscape architects (Nasar & Lin, 2003). It was evident that through the casual observation and personal experiences that children like water and water play. One of the early studies that explored the relationship between water and children has shown that presence of water is important for children (Zube et al., 1983). Woolley et al. (1997) found that majority of children prefer water features rather than sculptures and statues. This was significant finding to understand how important the water in urban open spaces is for children. For instance, later research findings show that designed water features and a pond provided seasonal experiences of water to the children using library (Derr and Lance, 2012) while the existence of water in parks can increase the active recreation of girls (Hume et al., n.d). More recent research in Mexico City showed that children identify good park if it has fountains in which they can run and splash (Gulgonen and Corona, 2015). Although children like the presence of water, children's access to the recreational water in their home settings likely to be limited apart from some families from advantaged

background. Therefore, majority of children's access to recreational water and their water play limited with urban open spaces.

However, there has been limited research exploring children's experiences of water play in public settings. One of those rare researches has explored children's perception of river and river restoration and found that children have fears and concerns around rivers (Tapsell, 1997). Later on, following research about children's perception of two London rivers and their play in river environment has indicated that rivers have little importance to London's children outdoor play (Tapsell et al., 2001). The research about children's interaction with water in urban open spaces has been carried out by Tunstall et al. (2004) and they have identified that rivers are seen as polluted, littered and dangerous places, and most of play around rivers was non-river related. However, the recent research identified disaffected young people's positive relationship with rivers when they experience angling as an intervention (Djohari et al., 2017)

The literature about children's experiences of water features, and facilitation and control of water features in urban open spaces is limited both for natural and artificial water play. Furthermore, it seems that parental understanding and control of water play in urban open spaces has never been research. Therefore, this research paper aims to brings all three different aspects of the spectrum with subject triangulation methodology and it explores children's water play in urban open spaces via children's experiences, parental and professional understanding and controls.

Therefore the aim of this research is to explore what makes water features in urban open spaces attractive to children and what opportunities or constraints influence children's ability to experience those water features.

## **3. Study sites**

Sheffield city set as boundary criteria for this research due to logistic convince of the location and historical evidence that Sheffield had many water features in the past and still have the

ones children currently interacting. The criteria also involved that study sites being different in terms of their design, location and children's experiences, in order to compare how natural sites are different than designed water features for children's experiences, or how sites designed for visual purposes differ from sites specifically designed for children's play.

Three sites were selected using the above criteria. The first site was the Peace Gardens, which is one of the favourite water areas in Sheffield (figure 1 and 2). The Peace Gardens included many artificial water features such as water falls, canals and water jets. Although they were not designed for water play, it has been a big children attraction in the city centre.

The second site was Endcliffe Park (figure 3), one of the largest public parks in Sheffield. The Park has a natural stream that was used to power water mills. In the beginning of 20<sup>th</sup> century the site was turned into park. Two water mill ponds became rowing ponds and they are currently used for their visual aesthetics. In addition to stream and ponds park has very popular stepping stones, where majority of children's interact with water happens. The park does not include any artificial water element, but an example of natural water interaction. The park acts as a connection and transition between the City and The Peak District National Park.

The third study site had been selected was Millhouses Park, which was one of oldest parks in Sheffield. The Millhouses Park has always related with water activities since it was opened in 1909. Currently, Artificial water play area specifically designed for children's water play is a one of the strongest points of this park (figure 4 and 5). It is a family day out location for many families in Sheffield.

#### 4. Methodology

In order to achieve research aims and objectives triangulation approach was chosen. Triangulation is an approach that uses advantages of both qualitative and quantitative methods and originally introduced by Denzin (1970). In terms of Denzin's (1970)



Figure 1. Aerial photograph of the Peace Gardens.



Figure 2. The Peace Garden in september (Taken by Melih Bozkurt).



Figure 3. Aerial photograph of Endcliffe Park.

classification this research is methodological triangulation, which consist of using at least three different research methods.

This study used three research methods in various different ways explore the phenomenon (Table 1). The first method used was surveys that have been undertaken with Children and parents. Surveys were proposed to be



Figure 4. Aerial photograph of Millhouses Park.



Figure 5. Millhouses Park Water Splash Park (Taken by Melih Bozkurt).

undertaken in primary schools within a 1-mile radius of a study sites. Three primary schools, each from different study site, recruited and participated to this research. Children age between 8 and 11 (year 4,5 and 6) included in this research and covers most of the primary school age. Children younger than Y3's were not included on purpose because of their limited ability to read and write. Year 7 students were also not included due to their busy schedule.

Table 1. The relationship between methods and target groups that they cover.

Table 1. Methods and Target Groups			
Target Group	Where	Age	Method
Children	Schools	8 - 11	Surveys
	On sites	8 - 11	Observation
Parents	Schools	all	Surveys
	On sites	all	Interviews
Professionals		all	Interviews

Boxes that included surveys, consent forms, A3 size photographs of the sites, and instructions for class teachers were delivered to schools on an arranged date.

Moreover, children were given take home surveys for parents to complete. Parents' surveys were designed to get an understanding of the parents' point of view about water play in public open spaces.

Furthermore, surveys were also conducted with parents of nursery age children. The same criteria used for primary schools also applied to nursery school selection. Three nurseries accepted to take part in this research and surveys were placed at the sites where parents could easily see them and pick them up. Researchers also placed return boxes directly next to the survey boxes and under the poster explaining the research. As this was not an obligatory survey, parents picked them up of choice.

The second method used in this study was behaviour mapping observations. A tool for observing children's experiences of water (TOWEC) was developed to undertake observation as none of the previous tools seemed to be suitable for exploring the children's play with water in urban open spaces. The TOWEC included activity codes, age codes, gender codes as well as time, day of the observation, area condition, temperature, and weather conditions such as sunny, part-cloudy, cloudy, light rain, and heavy rain. More details about TOWEC explained elsewhere (Bozkurt, et. al., 2018). Behaviour mapping observations had been undertaken for a year in school holidays to increase the chances of witnessing children interacting with water features. Collected data was analysed cross-sectional between activity and gender, age, temperature and weather condition variables. Furthermore, all data was mapped to show the spatial distribution of different activities undertaken by different age and gender groups, and different weather conditions.

The third method was interviews, which are able to reproduce the internal realities of people's life stories, experiences, beliefs, values, ambitions

and perceptions (May, 2001; Silverman, 2005). Although observations helped to develop understanding about children's water play and its internal realities, it was important to explore how children's experiences of water facilitated and controlled. First of all, in order to explore parents' perception of children's water play and their control, parents who took their children to study sites for water play were interviewed. Thirty interviews were planned to be conducted in each study sites and 90 interviews in total. These were short interviews that would take 3 to 5 minutes long, and can easily be conducted on the go.

Furthermore, interviews were conducted with designers and managers of the study sites. The manager of the Endcliffe Park and Millhouses Park (same person) was interviewed. Due to fact that the Endcliffe Park was one of the oldest heritage parks in Sheffield, it was not possible to interview the designer. Although Millhouses Park is another heritage park, the water splash park was designed and added to park a few years ago. Therefore, designer of the water splash was interviewed. Considering the city centre spaces, both designer and the manager of the Peace Gardens were interviewed.

## 5. Results and discussions

### 5.1. Number and diversity of participants

In total 237 children and 104 parents were participated to the surveys. Almost equal percentages of males and females were undertaken children's surveys. On the other hand, females undertook 83% of the parental surveys and 17% were males. A total 85 interviews were conducted and 69% of te participants were females, and 69% were females and 31% were males. During the observation period 5217 children were observed and recoded to the TOWEC, which was later analysed. Furthermore, 4 professional's interviews were also included in the analyses. Interpretations were made using all of the information obtained

**Table 2.** Gender diversity of children going to the open spaces.

	the Peace Gardens	Millhouses Park	Endcliffe Park
Male	49	47	49
Female	51	53	51

**Table 3.** Gender of children interacting and not interacting with water features.

		Male	Female
The Peace Gardens	Interacted	48%	52%
	Did not interact	58%	42%
Millhouses Park	Interacted	50%	50%
	Did not interact	60%	40%
Endcliffe Park	Interacted	46%	54%
	Did not interact	60%	40%

**Table 4.** Age diversity of children going to the open spaces and water features in them.

	the Peace Gardens		Millhouses Park		Endcliffe Park	
	Park Visit	Water Feature Visits	Park Visits	Water Feature Visits	Park Visits	Water Feature Visits
Age 8-9	54%	51%	54%	93%	55%	84%
Age 10-11	46%	49%	46%	7%	45%	16%

and most important results are cited in the following part.

### 5.2. Children's experiences of water in urban open spaces

This study show that almost equal numbers of males and females visited the studied spaces (Table 2). However, from observations and surveys it was evident that greater numbers of female children interacted with water in all study sites (Table 3). Moreover, figure 6 shows the example of female domination in Ecclesall Park as it was identified by behaviour maps. Each individual dot on the map represents a child recorded in the area during observation in specific time period and doing a special activity. In the previous study, it has been concluded that water features make urban open spaces more appealing for adolescent girls (Hume et al., n.d.). This current study provided some additional evidence with respect to girls' interaction with water, namely that, although parks are male dominated environments (Hume et. at. nd; Karsten, 2003), water features are seen to be more appealing for older (adolescent).

This study has illustrated that age diversity of children visiting parks were similar among all study sites (Table 4). Children aged 8 and 9 paid slightly more visits than children aged 10 and 11. However, children's visits to



Figure 6. Example of female dominance in Endcliffe Park.

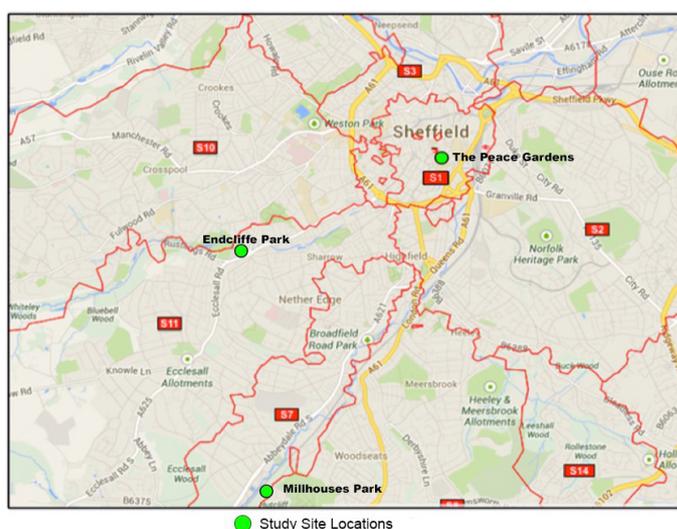


Figure 7. Study site locations and postcodes.

the water features were different than proportion of children visiting those parks. Furthermore, in the results there was an evidence that children's independent mobility increases by age. Children age 8 and 9 have never came to the city centre alone but as they get older higher percentages of children visited alone. Moreover, there is almost three times more children from age 11, who came to city centre with friends (33%), compared to children age 8 (12%). Additionally, there was a sharp increase between age 10 and 11 (24%, 33% respectively). All these findings about older age groups seems to be related with gained independent mobility, due to the fact that previous studies have identified that independence is gained from age 10 (Hillman & Adams, 1992; Hillman et al., 1990; Veitch et al., 2008; Brockman et al., 2011; Foster et al., 2014). As their independent mobil-

ity increases, children are likely to visit longer distances such as; city centre spaces, rather than their local parks.

This study also suggests that there is a strong relationship between proximity of living and children's visits to urban open spaces. The majority of children living in distant areas accessed both parks by car. For instance, 68% of the children living in S2 postcode area (Approximately 3 miles) and 58% of children living in S11 postcode area (Approximately 2 miles) accessed Millhouses Park by car (figure 7). Therefore, children in these areas, who have no access to a car might not be able to visit the water features. Results suggested that children who have never visited both parks were from S2 postcode area, which is on the East side of the city by comparison all parks are on the South-West of the city (figure 7). Those children and their families may not have access to a car. This is supported by the UK Census 2011 data, which shows that the highest percentage of people with no car ownership live in S2 postcode area among other areas (Office for National Statistics, 2011). This study discussed the relationship between proximity of living and use of urban open space with several indicators. Those findings seemed to support relevant research knowledge that suggests human activity directly related to distance and nearby open spaces are more likely to be visited more frequently, if desired exist (Giles-Corti & Donovan, 2002a; Giles-Corti & Donovan, 2002b; Veitch et al., 2006; Shaftoe, 2008).

Two types of water interaction have been identified: active and passive interaction. Active interaction involves activities that require physical contact, spending time and energy with water features. Therefore, activities such as: walking/running in the water, playing with equipment in water, jumping in the water, or playing chasing games (water fights), can be counted as active interaction. Passive interaction does not require physical contact or spending time and energy with water. These kinds of activities are generally distant activities. For instance, observing water, listening to water, sitting around water, or laying around water. This is one of the most important findings of

this study because no previous research was able to identify this sort of interaction profile about children's water play.

Moreover, this study also suggests that younger children seemed to be more interested with active water interaction than older ones in all study areas. Older children mentioned in surveys that "active water play was nice for young children", "my sisters enjoying it" or "I really enjoyed when I were younger". Moreover, they also mentioned that they "like picnicking", "listening to music" and "watching water features", which are passive interactions. This shows how they transition to different personality and move away from active water interaction to passive interaction, and how age is related with this transition. In Millhouses Park 80% of children interacted with water features, which was related with having structured water play area. However, only a few older children were observed. This was evident in the observations and age diversity map of Millhouses Park which shows the major difference in the age groups that experiencing water (figure 8). Although very limited research seems to be published about children's interaction with artificial structured water features in parks, play literature provide evidence that children become uninterested in structured equipment as they get older (Veitch et al., 2006; Veitch et al., 2007). This was also the case with structured water splash in Millhouses Park due to fact that it was designed for children younger than 7 years old.

### 5.3. Parental attitude towards water play in urban open spaces

Another aspect of this study was to explore parents' perception and control of children's water play in urban open spaces. Parents' attitudes towards children's water play were coded into three categories: positive, negative and cautious. Majority of parents' attitude was positive (84%) both in interviews and survey and significant amount of parent favoured structured artificial water features in Millhouses Park. There are several reasons behind Millhouses Park being parents favourite place such as; Millhouses Park being family day

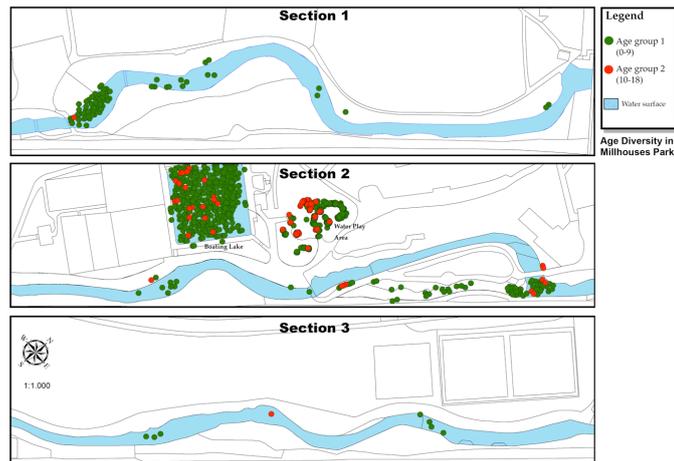


Figure 8. Millhouses Park age diversity behaviour map.



Figure 9. The Peace Gardens in summer when water features turned down (taken by Melih Bozkurt).

out location, potential social interaction and play opportunities and lastly, structured water play is clearly seen as safe environment. Structure water play has never been discussed in the literature, hence the significance of this study. However, play literature has many similar findings where parents in favour of structured play spaces. Play space provision has never been changed in the last 5 decades, and only concerned on children's wellbeing in which self-protection is undervalued (Valentine, 1997; Veitch et al., 2006; Shaftoe, 2008). However, for the same reason (children's well being) parents have favour in structured play areas. This was also the case with structured water play.

Furthermore, 78% of the parents involved in this study also have positive attitude towards children's play with natural water resources such as; stream

flowing through Endcliffe Park. Furthermore, no negative attitude was detected about this space. Parents seemed to be rather cautious and recognized the importance of unstructured natural play mentioned by many academics (NPFA, 2000; Ginsburg, 2007; Kolb & Kolb, 2010). Their recognition was evident in both surveys and interviews.

Evidence from this research suggests that only 14% of the parents have cautious attitude. Those parents were concerned with water quality, safety around water and visible dangers such as; broken glasses and sharp objects. However, majority of those parents did allow their children to experience water features despite their concerns. A minority of parents restricted their children's experience to non-physical contact such as; playing on stepping-stones. It has also been previously identified that physical and social concerns likely to limit children's experiences in urban open spaces (Blakely, 1994; Valentine, 1996; Valentine & McKendrick, 1997; Valentine, 1997; Karsten & Vliet, 2006). Parental controls due to concerns and worries seems to be limiting some children's water play in urban open spaces.

On the other hand, 11% of the parents had negative attitude in Sheffield City Centre where lowest percentage of positive attitude (70%) was also obtained. Majority of those parents were reluctant to go to city centre for just children's water play, which also supports the argument that when proximity to open space increases, the frequency of use also increases. Some parents questioned whether city centre was an appropriate place for water interaction. They were prepared to drive their children some distance for the desired location such as swimming pools, or "Magna", which is private science adventure centre with water feature. Driving children to other quality parks (Veitch et. al. 2006) or private play centres is not a new phenomenon but the tendency seems to be growing (McKendrick et al., 2000; Hart, 2002), which reduces the number of children playing freely in urban open spaces. This research seems to support these existing findings and revealed that negative

parental attitude and driving children to more appropriate places is also the case with the experience of water features.

#### 5.4. Professionals understanding of water play

Professionals seem to consider children's water interaction in the design and management for at least some of those spaces. According to Moore (1989) controls of the spaces identified in two categories; physical and social controls. Manager of the Peace Gardens has admitted using physical controls in the site. When the Peace Garden gets quite crowded, the city centre management team lower the water features or completely turn it off until crowds reduce. However, arguably this approach limits children experiences of water in urban open spaces. This act makes children undesirable according to Tibbalds (2001) categorization because turning the water features off only eliminates the children interacting with water and rest of the public likely to continue their activities. Lowering the water features likely to limit age range playing in the water. Children older than age 5 or 6 are less likely to enjoy lowered water features. However, it can be argued that lowered water features might create opportunities of safer water play for toddlers and young children (Figure 9). This was also witnessed in the observations.

There also seems to be social controls of managers via city centre ambassadors. Although no direct issue has been reported regarding them, during the observations it was witnessed that ambassadors limit some behaviours such as water fights, skate boarding and cycling. For instance, in one case ambassadors stopped children playing water fights and collected bottles to prevent them restarting their activity. Although the role of the ambassador and what they were trying achieve could be explained with preventing children tripping, slipping, or disturbing other people, ambassadors had still intruded children's unstructured play.

The biggest issue related to the professionals were budget. The manager of the Endcliffe and Millhouses Parks mentioned that he had just about the

right number of staff in the team but on busy summer days the management and maintenance team struggled to keep up with demand due to lack of staff, adding that the management team probably will not have new staff available in the foreseeable future because of governmental cuts, which have affected almost every city councils across the country. Budget cuts affects the quality of not only water features but also whole park management strategy in Sheffield. A reasonable approach for tackling this issue could be using the findings of this research about where large numbers of children interact with water and introducing focused management regimes. As these tasks, will be concentrated on a few areas in the parks, it could be undertaken with the available workforce.

Moreover, the budget issues also effect provision and sustainability of water features. Artificial water feature provision is expensive task as it includes many steps to provide quality water that is suitable to health and safety regulations. Additionally, electricity used in water jets, pumps and many other parts of the water feature, is expensive. Hence according to a designer of the structured water play area in Millhouses Park, Sheffield Local Authority could only afford one artificial water feature, the Peace Gardens, and now the rest of city parks are struggling to pay for Millhouses water play area, which is the second artificial water feature opened in the city. Future of the artificial water features is uncertain, due to running costs and budget cuts. In recent years, United Kingdom has confronted the largest budget cuts since 1980's. City councils are struggling to manage public spaces. Sheffield has also affected from the situation and lost half of its local budget (Sheffield City Council, 2014). It should not be forgotten that many water features in the past were neglected and closed down due to lack of relevant budget, management and public interest in Sheffield, such as water features in Charter Square, Millhouses Lido and Millhouses Paddling Pools. The latter two places were both closed in 1989/90 when one of the largest budget cuts have happened (Urban Parks Forum, 2001). There is a risk of

Millhouses artificial water play would share the destiny with its antecedents, if urgent precautions will not places immediately.

The last category that needs to be emphasized related to professionals' non-consideration of water play in natural areas. Although unstructured water play has many potential benefits to children such as; developing their understanding, experiences about water and world, motor skills, improving observation, concentration and educational success (NPFA, 2000; Greater London Authority, 2003; Broadhead, 2006), the manager of Endcliffe Park has admitted that children's interaction with natural water features has never been considered and nothing has been done towards water play in Endcliffe Park. This creates social and physical boundaries to children. One major drawback of this approach is that the boundaries children mentioned regarding Endcliffe Park are likely to be related to ignorance about water play in this area. Moreover, the managers added that water play in natural environment will not be in their agenda near future, although natural water play in urban open spaces is a cheaper and more sustainable alternative to artificial water play and it might replace artificial water play to save children's water play during financial budget cuts. Therefore, promotion and management of natural water play should be places on the agenda as soon as possible.

## 6. Conclusions

The purpose of this study was to explore what makes water features in different urban open spaces attractive to children and what opportunities or constraints influence children's ability to experience those water features. Children's interaction with water has hardly been researched. Hence, the significance of this study was the exploration of how children experience water features in different types of urban open spaces and the identification of parental and professional attitude towards children's water play. This study was first of its kind to look at this issue in the three different dimensions.

This research has ascertained many

emerging themes that support existing research knowledge such as: relationship between proximity of living to urban open spaces and frequency of use; as children get older their independent mobility increases and this increases children's use of city centre open spaces; male children, especially older children, are less interested in with water related activities; and minority of children interested in water interaction with physical contact in river environments. This shows that how well this research findings fits on general context in the literature. However, majority of findings derived from qualitative methods specific to the time, date, location and ethnographic mix involved in this study. Therefore, there are some limitations on generalizability of the findings. Moreover, this research has also themes emerging that add to the body of knowledge: two types of water interaction have been identified (active and passive); female children were more attracted and more interacting with water features; structured water play provides limited opportunities; children loose interest about water features in urban open spaces, when they transition to adolescents; majority of parents have positive attitude towards water play in urban open spaces but their favourite water play is structured water play area in Millhouses Park, where children were deemed to safe in water. Some of those parents have concerns and negative attitude towards water play in city centre. Lastly, one of the important findings of this research is that professionals water play provision is likely to be affected by budget cuts in the near future and professionals have never considered natural water play in urban open spaces, which is more environmental friendly, and sustainable. However, when we consider number of run down water features due to budget cuts in the past, the natural water resources seem to be the future of water play in Sheffield. Professionals working in the council should develop policies to encourage communities, groups and children into natural water play through awaring them about pollution levels, flood risks and water quality. School trips might be good chance to educate children. Furthermore, in or-

der to increase the awareness and decreases the level of parental concerns, Sheffield parks and countryside management team should test the water quality and should publicized the results through Sheffield City Council web site, local new papers and even on the digital advertisement boards that placed in the areas natural water play might be possible. Moreover, budget cuts affected majority of councils in the country (Neal, 2014), adopting natural water play would be future for water play not only for Sheffield but also for all councils in the United Kingdom.

This research was limited with number of age groups involved in this study. Therefore, this research has also provided scope for new research about children's interaction with water features. Recruiting secondary school children will enhance our knowledge about how children's interaction with water changes over time. In addition, parental surveys were proved to be successful method to explore parents understanding but future research might focus on the parents who have negative attitude about children's water play with deep interviews to further investigate the reasons behind parental attitude. Lastly, this research has discovered professional's understanding and control about water play that highly effected by budget cuts and does not seem to consider natural water play provision.

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