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Article

Children in urban environments: A case study from a dense neighbourhood in Izmir-Turkey

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ABSTRACT

The aim of this study is to understand children's engagement with their urban outdoor environments in Izmir-Turkey, a city with a high urbanisation rate, and to explore the factors that affect their outdoor preferences outside of their school time. The study consists of a field study conducted in a densely populated middle-income neighbourhood. Participants are fourth-grade children from a state-run primary school aged 9–11 years (n=44) and their parents (n=40). The study followed a multi-methodological approach, employing questionnaires, drawing and story writing tasks as data collection methods. Results of the study showed the strong tendency to prefer outdoors during their free time even when their neighbourhood is a high-density urban settlement with limited opportunities for outdoor activities. In the studied neighbourhood, most of the participants mentioned the schoolyard over other locations as their preferred place for outdoor play. Other than the schoolyard, the children mainly reported familiar places in their neighbourhoods, close to their local environments which were also depicted in their drawings and described in their stories. From the perspectives of urban designers and policy-makers, the findings of the study highlight aspects to be concerned about opportunities for outdoor play in high-density and urbanised central neighbourhoods.

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INTRODUCTION

According to UNICEF, over half of the world's children live in cities (UNICEF, 2021). However, the consequences of unplanned and fast urbanisation threaten sustainable development which eventually results in inequalities in accessing the benefits of urban life (World Health Organization, 2013). Following a similar trend, Turkey faces major challenges due to problems concerning fast urbanisation. It is foresighted that before 2025, 84% of

Turkey will be urbanised and almost 80,000,000 people will be living in urban environments (World Urbanization Prospects, 2014). By focusing on one of the primary disadvantaged groups who are negatively affected by rapid urbanisation processes, namely children, this study investigates various dimensions of outdoor use – conceptually categorised as preference and perception – in a highly dense environment in Izmir, Turkey.

There have been both negative and positive changes in the daily life of children through the last four decades but

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the most worrying is that in developed cities children are increasingly disappearing from urban spaces (Kyttä et al., 2018; Veitch et al., 2006). Loebach and Gilliland (2016) state that most children's activities were taking place in outdoor settings before the 21st century. In contrast, today children spend most of their time playing digital games or watching TV (Beets et al., 2007; Burriss and Wright, 2001; Cherney and London, 2006; Kucirkova et al., 2018). Yet this has major negative implications since it has been repeatedly emphasised that spending time outdoors provides children with opportunities for healthy physical and mental development, socialising, higher levels of independent mobility and independence (Aziz and Said 2012; Carroll et al., 2019; Kyttä et al., 2018).

Local neighbourhoods have major importance for children living in urban environments (Oliver et al., 2014) by providing a familiar surrounding that makes children feel safer (Crawford et al., 2017). The neighbourhoods provide opportunities for children in making them feel free to explore their environments, discover places close to their houses, learn what is familiar and strange, socialise with other people and have a chance to improve their independent mobility (Lin et al., 2017). When primary school children were asked about their needs and favourite things about the urban environment they live in, they state that unsupervised play on streets (Ekawati, 2015) or a nearby friend's home in their local environments are their main choices (Carroll et al., 2015, 2018; Chawla, 2002).

Depending to a study conducted by Nordström (2010), geographical, cultural, and social characteristics of neighbourhoods affect outdoor use in different ways, especially for children living in urban environments (Woolley, 2006). Independent mobility is a significant factor in children's outdoor experiences and leads children to learn through interaction with their environments, and gain a variety of experiences about life in general (Alparone and Pacilli, 2012; Kyttä et al., 2015; Oliver et al., 2014; Schoeppe et al., 2013). Among inner-city children, one of the main reasons for the decrease of their connection with the outdoors and independent mobility is strict parental supervision (Fyhri et al., 2011; Shamsuddin et al., 2014). Parents' concerns about their children's safety (Malone 2011; O'Connor and Brown 2013) are mainly related to the danger attributed to strangers (Foster et al., 2014) and to traffic (Carroll et al., 2015; Francis et al., 2017). Because of the traffic fear, parents not only limit children's independent mobility but also escort them (Hillman and Adams, 1992) and chauffeur those (Lin et al., 2017) to wherever they go. As Hillman and Adams (1992) indicate there is a significant and frightening decrease in children's travel to school independently from 1971 to 1990. Hillman and colleagues (1990) soundly made the case that there is an unsubstantiated fear among adults about the danger posed by the traffic which resulted in a significant decrease

in children's independent mobility regardless of statistical data indicating a decrease in children's death rates in traffic accidents. The recent body of related research informs us that parents' perceptions of the qualities of built environments including the presence of cross-walks, sidewalks, heavy traffic, and long street blocks also affect the outdoor use of children (Mitra et al., 2014).

Beyond research on children's outdoor use, there is also a developing concern about children's perception (Aziz and Said, 2012) and use (Moore, 1987) of their immediate environments. From a children's point of view, Mansournia and colleagues (2020) assert that children's perceptions of their environments are strongly related to how they see them and how environments afford the intended activities. During middle childhood, variation of the built environment characteristics and social and cultural factors influence territorial range and diversity of children's outdoor perception (Islam et al., 2016).

Accordingly, this study puts emphasis on the value of research on children's perceptions of, and their needs in urban spaces, an area that is comparatively understudied. Following a similar line of research, Severcan (2019) conducted a study in Istanbul and found that children in relatively more developed neighbourhoods are more likely to spend time in highly regulated and controlled environments. Severcan's research can be considered as an alert, especially within the context of Turkey, to revisit the strategies to create more opportunities for children in using the urban environments.

The research into the experiences of children in urban environments in Turkey suggests that children have fewer opportunities to spend time outdoors (Özdirenç et al., 2005; Sancar and Severcan, 2010; Severcan, 2018; Talay et al., 2010; Tandoğan, 2014; Yıldırım and Akamca, 2017). In comparison, Mills (2007) suggests that in Turkey outdoor space in neighbourhoods is traditionally considered as a natural continuation of indoor space, which might in turn support children's use of outdoor spaces. In this study, we investigate the potential negative effect of rapid on-going urbanisation on children's use of outdoor urban environments, yet following Mills (2007), we expect them to use outdoor neighbourhood spaces relatively more given the cultural tendency to consider the neighbourhood outdoor spaces as an extension of the private home space.

The aim of the study is to understand children's engagement with outdoor environments in a middle-income neighbourhood in the city of Izmir. There is research showing that rather than providing a more general illustration about the city they live in, children are more likely to provide details about their immediate environments where they spend most of their daily routines (Hayball et al., 2018; Lewicka, 2010; Li and Seymour, 2019), hence the focus on neighbourhood in this study. Accordingly, the study is

designed to capture the outdoor preferences of elementary school children – as reported in a questionnaire – the perceptions of the outdoor environments as reflected in drawing and story writing tasks in their neighbourhoods.

Research Focus

The relevant literature investigating urban children, which is briefly introduced in the previous section, informs us about the value of immediate opportunities for outdoor play within neighbourhoods. Informed by the focus areas presented in the existing body of research, the current study is designed to contribute to the literature by inquiring into two major research themes following the two conceptual routes concerning preferences and perceptions of children.

First, we focus on the instances of outdoor activity in central urban districts. Do children have opportunities outdoor within a highly dense neighbourhood in a central urban district? When given chance, where do the children spend time outdoors in their neighbourhoods with limited facilities for outdoor recreation? Under this theme, we consider the limitations involving both parental restrictions – mostly concerning safety issues- and the affordances of the neighbourhood with low levels of perceived safety. We also inquired whether other factors such as the availability of close-by playgrounds, gender and the existence of other siblings in the family have an impact on children's outdoor activities.

For the second research theme, we investigate the perceptions of children as they represent their outdoor experiences in drawings and stories. How do children's drawings and stories reflect the perceptions of their outdoor experiences in a dense urban neighbourhood? To what extent do the children provide immediate details of the built environments? We anticipate that what children

include in their drawings and stories to be produced in the absence of their parents will help us develop a deeper understanding of children's outdoor experiences. The next section illustrates the research tools employed in this study.

RESEARCH DESIGN

In order to pursue our research goals, we identified several school neighbourhoods in the Izmir metropolitan area with high-density urban fabric, with high floor area ratio (FAR), high traffic load, and limited infrastructure to support children's outdoor play. We use the term "school neighbourhood" in reference to the study by Lee et al. (2020). The concept fits well within the context of Turkey since, in the elementary education system, the related regulations require parents to have their children enrolled at the closest school to their residential addresses. Our neighbourhood assessment sheet, which is developed based on similar studies in the literature (Lee et al., 2020) and which documents physical environment characteristics, such as traffic safety, perceived safety and walkability – allowed us to identify Basinsitesi neighbourhood as one of the strong candidates to conduct our in-depth case study (Figure 1). The administration of the elementary school in this neighbourhood agreed to participate in our study.

Our research tools include drawing and story writing tasks for children and two questionnaires one of which was addressed to students and the other one to parents. The questionnaire consisted of a mixture of close and open-ended questions to understand children's and parents' perceptions and thoughts as had been previously used in many studies (Kyttä, 2002; Li and Seymour, 2019; Loukaitou-Sideris and Sideris, 2009).



Figure 1. Basinsitesi neighbourhood.

Participants and Site

The study was held in a state-run primary school located in Basinsitesi neighbourhood, which is at the city centre of Izmir. As of 2020, the total population of this neighbourhood was 16.754, its surface area was 0.59 km², and its population density was 28.352 person/km². It is a middle-income neighbourhood located on steeply sloping terrain. Although two-storey houses with private gardens prevailed in the neighbourhood when it was first developed in 1955, now it is full of midrise apartment blocks with five to six floors built on the same lot as the previous houses with private gardens. The transformation in the last decades has led to an urban fabric with repeated apartment blocks that have no front or backyards, which is why the density is relatively very high (Figure 2). The area is dominated by heavy and active traffic with cars, city buses, and ambulances that serve the large public hospital located in the neighbourhood.

Among primary school children, fourth-grade students were chosen as the target group because upper-middle childhood is an important period when children have a meaningful connection with the outdoors, respond to their environment, and if the opportunity is given, willingly spend time outdoors (Derr, 2002; Islam et al., 2016). The school where we conducted this research had two fourth-

grade classrooms, and we conducted our research with all students of these two classrooms (n=44) and their parents (n=40). Participants were instructed not to give their names and were given numbers as pseudonyms to provide anonymity. The majority of children participants were 10-years-old (n=34, 77%) and had one sibling (n=26, 59%). However, gender distribution was not equal, the majority were girls (n=27, 61%). Most parent participants (n=24, 60%) were between 35 and 40-years-old. Most of the parent participants were female (n=36, 91%) and had no extra childcare support (n=32, 80%).

Procedure

In the preliminary stage, interviews were conducted with the school administration and the classroom teachers to inform them about the process, and to reach an agreement about the study protocol. As a result, it was decided that two class hours would be enough to complete the tasks in each classroom. The protocols were prepared for the introduction parts of the questionnaires, story writing and drawing to ensure uniformity in explanations given to each class. The study carried out a quantitative approach using questionnaires which include close and open-ended questions. The questionnaire was designed to capture children's perceptions and use of their outdoor



Figure 2. Views from the neighbourhood.

environments based on our review of studies on children (Cherney and London, 2006; Kytä, 2002; Li and Seymour, 2019; Loukaitou-Sideris and Sideris, 2009).

Children were taken as the primary source of information providers given that when children are asked about their opinions, they provide significant feedback as shown in repeated studies (Powell and Smith, 2009) either verbally, or through drawing (Alerby, 2002; Barraza, 1999; Bowker, 2007; Labintah and Shinozaki, 2014; Mitchell, 2006; Pelander et al., 2007; Rennie and Jarvis, 1995; Turkcan, 2013; Willats, 2006), or by story writing (Gülgönen and Corona, 2015; James, 2017; Quintero, 2010; Shabak et al., 2015; Watanabe and Hall-Kenyon, 2011). Task-based methods allow children to better engage in the activity and allow interaction between the child and the researcher (Kalvaitis and Monhardt, 2012). If the opportunity is given, children can provide as much information about themselves, their ideas, choices, and perceptions as adults (Koutsoftas, 2016; Von Koss Torkildsen et al., 2016).

The questionnaires include questions about the time period and frequency of use outdoors, independent mobility, socialisation condition, and place preferences. In the drawing and writing session of the study, the children were asked to draw or write about their favourite things about the outdoors. The administration of the questionnaire, story writing and drawing tasks were carried out in two different fourth grade classrooms in consecutive two class hours (40 minutes). The first-class hour was used for the questionnaires and the second-class hour for the drawing or story writing after a 10-minute break.

In the first-class hour, the questionnaire protocol was read aloud in the first five minutes, and the children were given 30 minutes to complete their questionnaires. In the second-class hour, the drawing or story writing protocol was read aloud in the first 5 minutes, and each participant was given a previously numbered blank A4-sized paper for the drawings and A4-sized line paper for the stories. They were asked to make drawings or write stories about their favourite outdoor thing(s). After completing the drawings, they were asked to provide a written explanation of their

drawings on the back of the paper. Finally, the parent's questionnaires were distributed to children to be taken to parents. Parents who volunteered to participate in the study completed the questionnaires at home and returned the forms to the class teacher the following day to be taken back by the researcher.

Analysis

Questionnaires

A mixed-method strategy, combining both quantitative and qualitative data collection and analysis (Creswell et al., 2011) was used in this study. For the analysis of the closed-ended questions of the questionnaires, statistical tests were conducted to investigate to determine significant differences in the answers. Concerning statistical analysis, we have run descriptive statistics, a chi-square test, and independent samples t-test analysis to determine significant differences with regards to gender, the existence of other siblings in the family, and availability of a close-by playground. Reporting the results, we will only provide the significant differences in the discussion section below. We have conducted these tests to further investigate the set of potential factors to influence the time spent outdoors. For the open-ended questions, the qualitative data was organised as segments and grouped according to the emerging themes of the research questions. In the following section, we have presented a single cluster – concerning safety – to support our analysis for the neighbourhood.

Drawings

Inductive qualitative content analysis was used to analyse the drawings. Following the analysis techniques in related research (Köse, 2008; Labintah and Shinozaki, 2014; Reiss and Tunnicliffe, 2001), we developed a system of five levels of thematic understanding – depending on the salient features introduced – for children's drawings (Table 1). In order to develop a deeper understanding of the drawings, the data was analysed through a thematic analysis. Similar to inductive content analysis, thematic analysis is a qualitative research method that mainly searches for

Table 1. Details of the drawing scoring system

Analytical levels	Details within
Level 1	Children did not make any drawings
Level 2	These drawings include identifiable elements which shows some degree of understanding however, they are only related to indoor environments
Level 3	These drawings include identifiable elements and activities which shows higher degrees of understanding however, these drawings represent anonymous places. There are no details related to outdoor environments
Level 4	These drawings include identifiable elements which are related to outdoor environments, however, these drawings have less details such as a tree and sun sea and mountain or a child and a building
Level 5	These drawings have detailed representations related to outdoors. They are comprehensive, realistic, and understandable

themes that emerge directly from the data (Terry et al., 2017). Using both inductive content analysis and thematic analysis in children's drawings allowed triangulating the interpretations and provided greater insight into the data. To ensure the validity of the study, the researcher and an independent coder who is an expert in environment and behaviour research, separately and individually evaluated all the drawings.

Stories

In parallel with existing techniques in literature, the stories were investigated through a qualitative content analysis (Krippendorff, 1980), which is a widely used research method in social sciences with a focus on the characteristics of language as written contents to analyse textuality (Bengtsson, 2016; Nunkoo, 2018). The content of the text data was subjectively interpreted through the systematic classification of coding and themes or/and patterns were identified (Hsieh and Shannon, 2005). All stories were separately and individually examined by the researcher and one independent coder who is an expert in environment and behaviour research to ensure the validity of the research. Finally, a set of criteria was determined to analyse the content of stories (Table 2).

RESULTS AND DISCUSSION

The results indicate that the children's independent mobility in this dense neighbourhood is limited due to concerns related to safety and traffic as mainly suggested by the existing research in urban studies (Aziz and Said 2012; Carroll et al., 2019; Hillman and Adams, 1992; Kyttä et al., 2018; Lin et al., 2017). When asked, 60% of parents stated that they do not let their children go out alone due to security concerns. The content of children's stories and drawings was pivotal to develop a better understanding of what they prefer to do when given the chance to spend time outdoors. The results of the field study are presented in line with the investigation themes introduced earlier (Table 3).

Importance of Local Environments for Outdoor Experiences of Children

Depending on the frequency analysis of the questionnaires, most children (86.4%) and parents (87.5%) reported that children frequently spend time playing outdoors outside their regular school hours. This finding, which relies on children's and parents' self-reports, is in conflict with many studies which argue that today children do not spend time outdoors, and especially that their play habits increasingly involve indoor activities (Loebach and Gilliland, 2016). One potential reason for this discrepancy could relate to the fact that participants may underreport staying indoors because they might guess that it has a negative connotation.

Most children (90.9%) stated that they are not allowed to go outside without adult supervision. Parents (60%) also mentioned that they do not allow their children to go outside alone, and only let them alone if they can see them, or trust in the safety of their local environment. The following excerpts from parents' answers in open-ended questions of the questionnaire highlight the importance of security with its various dimensions:

"I do not think that my child's age is appropriate to go outside alone. In addition, I do not trust people. Child kidnapping is very common these days."

"Now times have changed. It is hard to trust people around. In addition, there is no proper area for my child to play or walk around alone."

"These days, school bus is the safest option. Our house is very close to school, but traffic is very dangerous."

Traffic, strangers, and other threats related to urban insecurity tend to increase the protective instincts of parents (Carver et al., 2010). Parents in this study think of streets as places of danger for their children (70%). This is confirmed by the fact that all children live within walking distance of their schools, but 64% of them use the school bus or private vehicle to travel to school. Only 36% of children walk to school. Considering differences between boys and girls, there was a significant relationship between

Table 2. Details of the story writing scoring system

Categories	Details
Activity type	Type of activity in terms of whether it can be done alone or with someone and in terms of whether it is planned or not
Activity place	Specific or non-specific location where the activity takes place
Natural elements	All elements that exist without any human involvement
Artificial elements	Elements which are created by human
People	Any person depicted in any circumstance
Living creatures	All living things including animals and plants other than human beings
Mood	Feelings, sensations, ideas related to positive or negative moods
Time range	Specific time, hour, date, day, month, or season

Table 3. Descriptive statistics for children's questionnaire

	n	%	M	SD
Age			10.00	0.473
9	7	15.9		
10	34	77.3		
11	3	6.8		
Gender			1.39	0.493
Female	27	61.4		
Male	17	38.6		
Have sibling/s			1.77	0.424
Yes	34	22.7		
No	10	77.3		
Going out for playing a game			1.14	0.347
Yes	38	86.4		
No	6	13.6		
Number of days going out on weekday			3.66	1.711
Never	5	11.4		
1	6	13.6		
2	9	20.5		
3	5	11.4		
4	3	6.8		
Everyday	16	36.4		
Number of days going out on weekend			1.89	0.443
Never	2	4.5		
1	7	15.9		
2	35	79.5		
Hours spending time outside in a day			2.73	1.246
1	10	22.7		
2	11	25.0		
3	4	9.1		
More than 3	19	43.2		
Being out with a presence of an adult			1.09	.291
Yes	40	90.9		
No	4	9.10		
Having children's park or playground near home in walking distance			1.14	0.347
Yes	38	86.4		
No	6	13.6		
Hours of watching TV in a day			1.50	0.902
Never	2	4.5		
Weekdays	32	9.1		
Weekend	4	13.6		
Everyday	6	72.7		
Hours of using cell phone, tablet or computer in a day			1.82	0.995
Never	0	0		
Weekdays	0	0		
Weekend	18	40.9		
Everyday	26	59.1		
Travel to school			0.360	0.640
Walking	36.0	1.00		
By a vehicle	64.0			
Places to play while being outside				
Playground	23	52.3	.52	1.00
Street	27	61.4	.61	1.00
School Garden	33	75.0	.75	1.00
Home or apartment garden	23	52.3	.52	1.00
Sports area	19	43.2	.43	1.00

gender and travel to school (Table 4, $\chi^2(1, 44) = 6.039$, $p = 0.014$). The majority of girls use school buses or vehicles further highlighting the disadvantages girls face when it comes to independent mobility.

Playgrounds in urban neighbourhoods are one of the most important outdoor environments for children (Azmi et al., 2012; Spencer and Woolley, 2000). According to the results, 86.4% of the children and 85% of the parents reported that there are playgrounds or play areas near their house. However, when children were asked about their preferences about the outdoor play during their free time, the schoolyard was the most common answer (75%). This is an expected finding because there are five playgrounds in this neighbourhood and four of them are located in the periphery. To reach these playgrounds it is necessary to go up and down steep slopes of the neighbourhood which is not easy for a child. Also, rather than providing free play opportunities, these playgrounds are furnished with identical accessories and ground material. There are studies reporting that children prefer playgrounds which is designed with a more natural design approach because of the variety of play elements and amenities (Woolley and Lowe, 2013).

The preference of the schoolyard might relate to the fact that it is relatively easier to access compared to playgrounds and offer a variety of opportunities for outdoor activities

for children in urban areas (Hyndman, 2015; Kasalı and Doğan, 2010; Özdemir and Yılmaz, 2008) which act as a hub for children's play in urban environments (Hart, 2002). Similarly, in our study, the schoolyard in the neighbourhood was mentioned as the preferred location for children's outdoor play. On the other hand, however, our visit and assessment of the schoolyard suggest that the environment can hardly be considered as an alternative outdoor location to offer opportunities beyond what is readily available in the neighbourhood's playgrounds. The yard is neglected and does not offer play alternatives. It is surrounded by fences and high walls. Its whole surface is covered with concrete, has few trees and no plants or grass around (Figure 3). The reason for the high frequency of schoolyard use maybe that 82% of children in the study live within 400 m of their school, which is considered to be a walkable distance (Azmi et al., 2012), and they are familiar with this environment. This finding suggests that children mainly spend their outdoor time in easily accessible places which are close to their houses (Hart, 2002).

The street as the location for outdoor play is the second most common answer for children. In many studies (Abu-Ghazze, 1998; Churchman, 2003; Ekawati, 2015), it was found that children are important users of the streets. Street play has universal importance, which is argued to improve physical, cognitive, social, and emotional

Table 4. Chi-square test to compare pairs

Pair compared	Chi-Stat	DF	N	p-Value
Going out for playing a game versus gender	0.378	1	44	0.538
Going out in the mornings versus gender	0.074	1	44	0.786
Going out in the afternoon versus gender	0.014	1	44	0.907
Going out in the evening versus gender	0.096	1	44	0.757
Not going out versus gender	0.038	1	44	0.845
Going out during the week versus gender	1.008	3	44	0.799
Being out with a presence of an adult versus gender	0.345	1	44	0.557
Spending time outside with mother and/or father versus gender	0.161	1	44	0.688
Spending time outside with brother and/or sister versus gender	1.375	1	44	0.241
Spending time outside with friend's versus gender	0.877	1	44	0.349
Spending time outside alone versus gender	0.004	1	44	0.947
Having children's park or playground near home in walking distance versus gender	0.378	1	44	0.538
Playing in playground area versus gender	0.302	1	44	0.583
Playing in street area versus gender	0.131	1	44	0.718
Playing in school garden area versus gender	0.288	1	44	0.592
Playing in home or apartment garden versus gender	3.201	1	44	0.74
Playing in sports area versus gender	0.703	1	44	0.402
Travel to school by walking versus gender	6.039	1	44	0.014
Travel to school by vehicle versus gender	6.039	1	44	0.014

The bolded rows represent the significant relationship.



Figure 3. Views from the schoolyard.

development and influences learning and creativity through discovery (Flouri et al., 2014). Children mainly prefer to play on the streets even when neighbourhood parks and playgrounds are available locally. This is a finding with positive implications because playing on the street can be interpreted as having increased levels of independent mobility, physical activity, socialisation, and unorganised play opportunities (Ekawati, 2015). Similarly, we found no significant differences with regard to having children's park or playground near home within walking distance and spending time outside and watching TV or using technological devices (Table 5).

With regard to gender differences and hours of using cell phone, tablet or computer in a day, we found significant differences between girls ($M = 2.04$, $SD = 1.01$) and boys ($M = 1.47$, $SD = 0.807$) conditions ($t(42) = 1.89$, $p = 0.065$). This finding conflicts with previous studies (Cherney and London, 2006; Hsin et al., 2014; Kucirkova et al., 2018), which state that boys are more likely to use technological devices than girls (Table 6).

With regard to having a sibling and hours of using cell phone, tablet or computer in a day, we found significant differences between girls ($M = 1.40$, $SD = 0.840$) and boys ($M = 1.94$, $SD = 1.01$) conditions ($t(42) = -1.54$, $p = 0.132$).

Table 5. Playground-based t-test analysis results

	Having children's park or playground near home in walking distance						p-Value
	Yes			No			
	n	M	SD	n	M	SD	
Number of days going out on weekday	38	3.74	1.67	6	3.17	2.04	0.260
Number of days going out on weekend	38	1.89	0.45	6	1.83	0.40	0.975
Hours spending time outdoors in a day	38	2.74	1.22	6	2.67	1.50	0.283
Hours of watching TV in a day	38	1.53	0.92	6	1.33	0.82	0.411
Hours of using cell phone, tablet or computer in a day	38	1.84	1.00	6	1.37	1.03	0.308

Table 6. Gender-based t-test analysis results

	Gender						p-Value
	Girls			Boys			
	N	M	SD	n	M	SD	
Number of days going out on weekday	27	3.78	1.70	17	3.47	1.77	0.590
Number of days going out on weekend	27	1.96	0.440	17	1.76	0.440	0.161
Hours spending time outdoors in a day	27	2.56	1.19	17	3.00	1.32	0.467
Hours of watching TV in a day	27	1.48	0.850	17	1.53	1.01	0.836
Hours of using cell phone, tablet or computer in a day	27	2.04	1.01	17	1.47	0.807	0.003

The bolded row represents the significant relationship.

Table 7. Sibling-based t-test analysis results

	Having a sibling						p-Value
	Yes			No			
	N	M	SD	n	M	SD	
Number of days going out on weekday	10	3.40	1.96	34	3.74	1.66	0.182
Number of days going out on weekend	10	2.00	0.470	34	1.85	0.440	0.410
Hours spending time outdoors in a day	10	3.10	1.45	34	2.62	1.18	0.285
Hours of watching TV in a day	10	1.50	0.970	34	1.50	0.897	0.854
Hours of using cell phone, tablet or computer in a day	10	1.40	0.840	34	1.94	1.01	0.000

The bolded row represents the significant relationship.

(Table 7). Gender distinctions which can culturally limit the independence levels of girls when compared to boys can be the reason for this difference (Johansson, 2006; Kyttä, 2004).

Drawings as an Indicator of Outdoor Experiences

A total of 22 drawings (100%) and 18 (81.8%) stories were retrieved from children. Based on the level of salient features included in drawings, we have created five analytical categories to analyse participants' drawings. Based on our inductive qualitative content analysis, we decided to focus on levels 3, 4, and 5, which included clear depictions of outdoor activities. According to these analytical categories, level 5 included the most sophisticated and detailed representations of the outdoors, whereas level 2 lacked the descriptions that are necessary for further analysis. Only two drawings are categorised as level 2 which includes misconceptions by depicting identifiable elements only related to indoor environments (Figure 4).

Drawings are mostly of level 4 category (40.9%) which includes identifiable elements related to outdoor environments; however, these drawings have fewer details than level 5 drawings. In level 4 category, children mainly depicted themselves undertaking activities such as swimming, riding a bicycle, skate boarding, walking, and using outdoor play equipment. Many of the drawings

were from level 3 category (31.8%) which includes identifiable elements and activities showing higher degrees of understanding; however, these drawings represent anonymous places. There are no details related to outdoor environments, especially with their local environments. In this category children mainly depicted themselves in team games such as football, basketball, taekwondo, and foot race.

Drawings categorised as level 5 (18.1%) have most detailed representations related to outdoors which are comprehensive, realistic, and easily understandable. All of these drawings are related to children's local environments and include many details related to identifiable elements like trash bins (resembling the ones which were provided by the public services in the neighbourhood), asphalt street with slope, apartment blocks with specific details like entrance door and barrier, neighbourhood park and even cat feeding in front of the apartment.

Depending on our analysis and children's short explanations of their drawings, only 41% of them depict their neighbourhoods. More than half of the environments and the activities introduced are definitely not supported by the neighbourhood (59%) but they take place far from their local environments. There is a strong relationship between what was introduced in the drawings and the general characteristics of the neighbourhood. As supporting

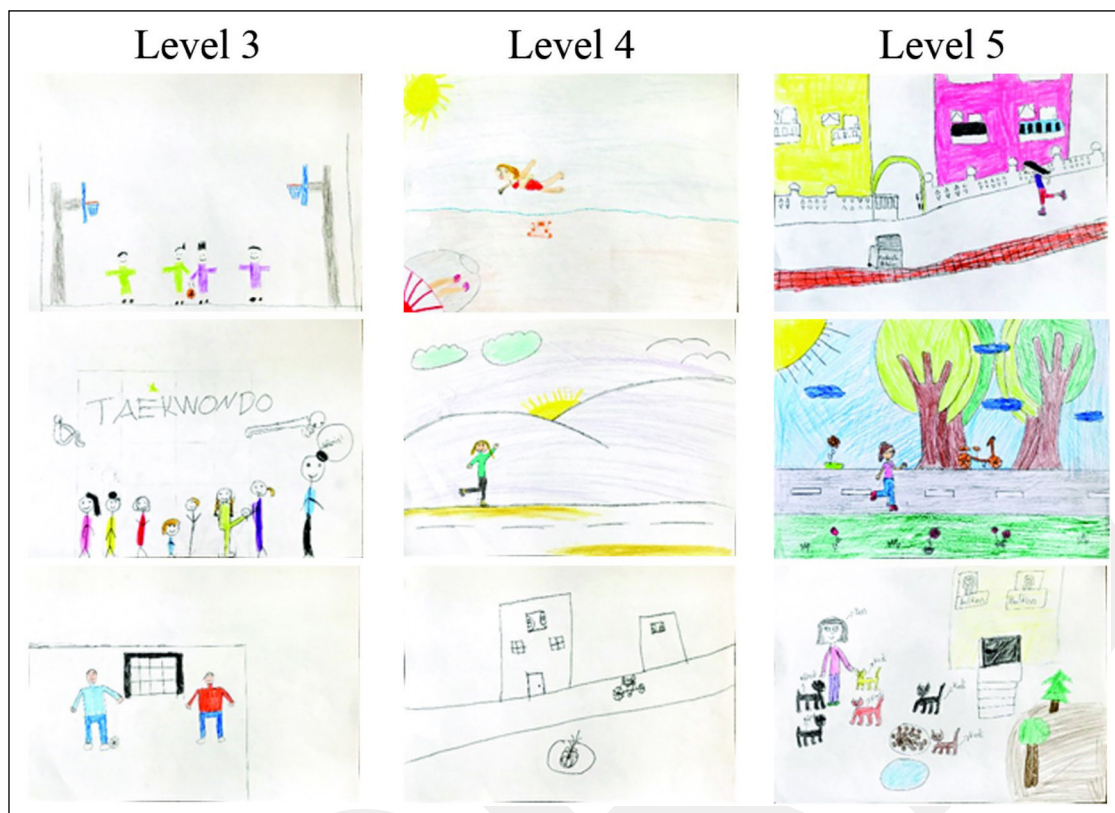


Figure 4. Examples of children's drawings.

this fact, none of the drawings included elements from neighbourhood playgrounds which were not emphasised as one of the favourite places for outdoor play in our larger data set. This can be also related to the high usage of the schoolyard and street.

One of the emerging issues in children's drawings was that the children were aware of the physical and topographic characteristics of their neighbourhood's especially steep slopes and building types. These drawings include the slope of the road, apartment blocks with similar façade design (repetitive windows and balconies) and asphalt roads. Similarly, drawings related to the schoolyard almost have no details because the whole area is covered with concrete with only a few plants and trees.

The situation is different with regard to the natural elements and living creatures that are depicted in the drawings. Despite the high number of trees and plants in the neighbourhood, children did not include them in the drawings to depict the time they spent outdoors. It seems like the number and the distribution of the trees and plants are not enough for children to perceive themselves in a green environment; and accordingly, they did not find it as a significant feature to be included in the drawings. Another observation based on our field visits is that there are many street animals, especially cats, living in this neighbourhood, but only one child included street animals in her drawing.

Looking at the drawings which are not related to the neighbourhood, children did not draw places they spend time in their daily life, instead, they drew their favourite places outside of their neighbourhood such as the city park, the garden of their summerhouse, the seaside, and indoor sports facilities. Each of these places offers something different than their neighbourhood does. The case study neighbourhood does not have indoor sports facilities for children to attend sports education like taekwondo, basketball, or swimming, which were all included in the drawings.

With regards to gender differences, it was found that drawings made by girls have more identifiable elements with more details. All the drawings categorised as level 5 were drawn by girls. The girls mainly drew themselves with other girls or their mothers. Without conducting a deeper analysis on particularities of the graphics, we can also assert that the girls' drawings are more colourful than boys' and include smiling faces. However, the drawings by boys introduced fewer details, less colour, and less happy faces. The boys also depicted themselves with friends, especially with other boys. These findings are consistent with previous studies conducted by Labintah and Shinozaki (2014) which mentioned that the drawings of girls include more details and identifiable elements than boys. In another study, Cherney and London (2006) also mentioned that girls and boys have different feelings and perceptions when they make drawings.

Children's Stories

For the story writing task, we have conducted again a qualitative content analysis, which offered differences among children in terms of providing detailed narratives with respect to eight categories consisting of activity type, activity place, natural elements, artificial elements, people, living creatures, mood, and time range. However, none of the children mentioned all these eight categories in their stories and the majority of the environments and the activities they mentioned are not supported by their neighbourhood (79%). This can be interpreted as children describing those places which are somewhat unique and significant rather than common places where they spend time in their daily life.

In their stories, all children wrote about people they spend time with, 42% of them talked about mood, and 89% of them explained every single time range for the whole day starting from the time of waking up to sleep at night. Even though the children were asked to write about outdoor experiences, 16% of children wrote about their indoor experiences and 33% of them also mentioned their indoor experiences in addition to their outdoor experiences. Depending on activity type, playing a game (39%) was on top of the list. The children have different choices about places they spend time outside so there is a wide range of activity places such as neighbourhood park, street, schoolyard, the garden of the house/apartment, summerhouse, seaside, play area in a shopping centre, cinema.

Following our analysis, we have observed a mismatch between the findings of stories and the neighbourhood characteristics. Only four children provided details about their activity places by mentioning specific places located in or near their homes, such as the garden of their houses, streets, neighbourhood parks, and schoolyards. Because of having limited opportunities in their neighbourhoods, it seems like children develop a strategy to appropriate existing spaces or find other opportunities – probably in the supervision of their parents – outside of their neighbourhood for outdoor play.

GENERAL DISCUSSION AND CONCLUSION

Outdoor environments offer great opportunities for children who are mainly restricted to indoors for many reasons, such as physical characteristics of the place they live in, surrounding neighbourhood conditions, personal and parental limitations, and level of independent mobility. Children's inadequate and unequal access to outdoor environments decreases their well-being (Aziz and Said, 2012), independent mobility (Hillman and Adams, 1992), and socialisation (Wright et al., 2017). According to the United Nations Committee on the Rights of the Child article 31, children have the right to rest, leisure and play in equal opportunities. Providing shared experiences of safe public

spaces by means of gender, age and other characteristics provide equality and strengthen civil society (Hart, 2002). The quality and equality of urban environments affect children's social interactions, playing and learning abilities, well-being, self-confidence, and independent mobility (Kytta, 2004). Thus, the more outdoor opportunity should be provided to meet the needs of children living in dense urban areas.

This study contributes to the literature by focusing on the child's perspective by employing a range of field methods. Moreover, the inquiry provides insights concerning the preferences and perceptions of children from a highly dense and urbanised neighbourhood with limited opportunities for outdoor activity.

According to the results of the study, most children mentioned that they play outdoors. However, there are some gendered differences among children about how these environments are used. This highlights the responsibility of policy-makers, municipalities, and urban planners to create child-friendly urban environments providing equal opportunities such as play, physical activity, active transport, social interaction, and independent mobility (Kytta et al., 2018) both girls and boys. If the number of public spaces for children increases, children may spend more time outdoors in urban environments (Woolley, 2006). Neighbourhoods are the main designed and planned spaces that all children can access as public spaces in urban environments (Crawford et al., 2017; Ekawati, 2015); contemporary design approaches to neighbourhoods, therefore, need to reconsider the evolving needs of children in urban environments. Our findings with the drawing and story writing tasks suggest that children are aware of the structural and physical characteristics of their neighbourhood environments. If these characteristics do not meet their demands, they prefer to be in places that cover their need even though they are far from their neighbourhoods.

One of the most important findings of the study is that in the central neighbourhood with a dense settlement character, only 36% of the children walk to school, although they all live within a walking distance to their school. Depending on a study conducted by Park and colleagues (2013), there is a strong relationship between the existence of appropriate design elements such as a sidewalk, crosswalk, street furniture, building and street condition and walking activity. In addition, another important finding of the study is that most children choose the schoolyard while spending time outdoors, although it is hard to consider the schoolyard as conducive to children's activities. Once again, the findings of this case study suggest that schoolyards especially in dense urban neighbourhoods come forward as environments to support outdoor play.

The findings of this study, conducted in a rapidly urbanised city in a developing country, suggest that the opportunities

for outdoor play are challenged by neighbourhood characteristics. Mills denotes that “in Turkey, the traditional urban neighbourhood is a space which extends the interior space of the family to the residential street; it is a space of belonging and collectivity” (Mills, 2007:336). As supporting this fact, by both using the traditional characteristics of the urban environments and design elements it can be possible to make children reach outdoor in their local environments.

The sample size of the study is one of the major limitations of this research. It is possible to conduct future studies with different groups of participants in different settlement types including rural environments. This would provide an opportunity to conduct a study in environments with different physical characteristics, demographic structures and participants. Less traffic, low-rise or semi-detached buildings, increased social bonds and other determinants can positively affect children’s outdoor use. It will be valuable to conduct similar field research during different times of the year in order to measure the effect of seasons on children’s outdoor use; the current study was conducted in the spring months, and this could influence children’s answers and perceptions. Finally, it may be useful to conduct in-depth interviews with children and talk to them in the outdoors, to enhance the information on their perceptions of their local environments.

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