

Children's Participation in Urban Planning and Design: A Systematic Review

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Abstract

Urban planning and design play a central role in determining the quality of the built environment and the ways families with children can access and use public space. However, there remains an ongoing need to clarify children's involvement in planning. This paper carries out a systematic literature review of 30 studies published between 1990-2017 in order to address and review the current state of the art of participatory approaches in urban planning to create child-focused urban environments. This systematic review resulted in (1) a comprehensive, quantitative picture of the current studies focusing on the participation of children; (2) an effective way to conceptualize children in planning; (3) a list of requirements for the successful practice of planning with children and its relation to sustainable communities; (4) discussion of the link between urban planning, methods, approaches, and outcomes for child-focused urban environments; (5) identification of existing gaps in the literature; and (6) examination of the role of policies and the link between policies, urban planning, methods, and approaches for further research.

Keywords: children, urban planning, urban environment, participatory approaches

Introduction

It is well known among scholars that the relationships between urban environments and children have changed. This situation can be attributed to the creation of "adult only" environments within today's planning paradigms, resulting in children being compelled to use places that are not designed for them (Karsten, 2005; Verstrate & Karsten, 2011; Carver, Timperio, & Crawford, 2008; Karsten, 2002). Although children have the capacity and skills to cope with urbanized environments (Adams, Savahl, & Fattore, 2017; Woolley et al., 1999), since the 1989 ratification of the UN's Convention on the Rights of the Child (UNCRC), scholars have been focusing on how to successfully involve children's voices in planning their environments. The UNCRC (UNICEF, 1989) recognizes that children (from infancy to age 18) are citizens who deserve the rights to survive, to develop, to be protected, to participate, and importantly, the right to recreation/ leisure/ play. Most of these rights need places and spaces, and it is here that urban planning and design can become tools to enable the realization of these rights.

Children explore their environments through expanding exploratory circles around their homes; this exploration contributes to their physical and mental health (Aarts, de Vries, van Oers, & Schuit, 2012). Researchers from different disciplines and perspectives (e.g., medicine, health, urban planning, sports and child development) have studied the relationship between outdoor physical activity and children's overall development and well-being (Davison & Lawson, 2006; Weir, Etelson, & Brand, 2006; Strife & Downey, 2009; Audrey & Batista-Ferrer, 2015; Christian et al., 2015; Christian et al., 2017; Gill, 2008). However, the discussion around which places are most suitable for children's play and socializing (e.g., streets, parks, supervised playgrounds) is still ongoing. According to Verstrate and Karsten (2011), though streets are important places for play, they are not the most suitable places for children as they have to share these areas with many other users and activities. However, by sharing streets with other users, children (and their parents) expand their social networks and may experience a positive influence on their self-confidence. Additionally, Shackell and colleagues (2008) mention that the larger the social networks children have in their neighborhoods, the higher the trust parents have in the safety of that area. Because parents are central actors in a child's development, their perceptions and concerns can dictate how and where children are allowed to go. When children experience parental discouragement of being alone in a city (Owens, 2017), it results in limitations being placed on children's exploration. In short, increasing parental concerns about the safety and security of their children, as well as debates over the optimum place for children to play and socialize, have been affecting their unsupervised exploration of urban environments.

Over time, the idea of playing has transformed from being unsupervised activity in streets and parks to being supervised activity at semi-public playgrounds. Further, today children tend to be driven by their parents to indoor or outdoor activities (Karsten, 2005). As a result of these transformations, children have become socially and physically invisible, which has affected the quality of life and quality of public spaces for children in cities. Children are excluded from public spaces alongside the simultaneous creation of adult-only urban environments.

Though built-environment professionals have aimed to create child-focused environments, researchers have identified that there are some limitations to these spaces. These limitations include being off-target, being ignored within official decision-making processes, being designed with little or no participation from children, and not reflecting the contexts and needs of the children (Francis & Lorenzo, 2002). Research has highlighted that planning and designing with (instead of for) children should be actively encouraged (Francis & Lorenzo, 2002; Derr & Tarantini, 2016; Pawlowski et al., 2017). By embracing better participatory planning approaches with children, their visibility and mobility can be enhanced.

This systematic review aims to answer the following research questions: (1) What are the participatory approaches used in urban planning to create more child-focused urban environments? (2) What is the role that urban planning and design can play in increasing awareness of the need for and enhancing child-focused urban environments? This paper develops a conceptual, theoretical framework derived from intentions of planning, the process of planning, methods used, and outcomes of planning with children. The aim of developing this framework is to demonstrate the relationships between intentions and the actual process of planning with children, the transformation of methods used during recent decades, and the relation between methods and overall results in achieving child-focused urban environments. This review aims to help urban planners, designers, architects, and policymakers enhance the inclusion of children in urban planning and design by identifying gaps in planning and design, inclusive methods that can be employed, and the importance of children's participation within the planning process.

Research Methodology

This study addressed the research questions by conducting a systematic literature review (SLR) following the methodology described by Boland, Cherry, and Dickson (2014). Before starting the SLR process, the researchers carried out a preliminary literature review to obtain an overview of the topic and establish the academic value of conducting an SLR. A search carried out on Scopus and Google Scholar databases for systematic literature reviews about child-focused approaches in urban planning and design returned only articles related to health issues of children who live in urban environments. Thus, this paper addresses this knowledge gap by systemically examining the existing literature regarding children's participation in urban planning and design.

Data Retrieval

The study used Scopus as the primary database for identifying relevant publications. In order to develop a keyword string, the researchers determined general keywords from the Scopus searches, and created a keyword list that was sorted by frequency level. This frequency level resulted in a definition of primary, secondary, and tertiary keywords. As a result, "child" or "children" and "participation" were defined as the primary keywords; "urban," "design," "public," and "planning" were defined as secondary. The others were identified as tertiary keywords and not added to the keyword string. The final string used in the Scopus search including primary and secondary keywords were: ("child*" AND "urban" AND ("planning" OR "design") AND "participation") AND PUBYEAR >1990. Thus, this

query was limited to publications after the UNCRC ratification. The query was carried out within article titles, abstracts, and keywords and it returned 535 publications. The search included book chapters and peer-reviewed conference papers and journal articles but did not include masters theses or Ph.D. dissertations.

Inclusion and Exclusion Criteria

In order to address the aforementioned research questions, studies were included if they a) were published in English; b) reported primary or secondary data from participatory studies that involved children (0-18) and/or their families; and c) contained qualitative data that was sufficient for assessing the role of any domain of urban planning in child-focused visions of urban environments. In keeping with relevant literature in this area, we defined the term “urban environments and public spaces” as public spaces in any suburb or city center. The inclusion criteria are further detailed in the Population, Intervention, Comparator, Outcomes, Study Design, Setting (PICOSS) table (Table 1).

Table 1. PICOSS table of inclusion criteria

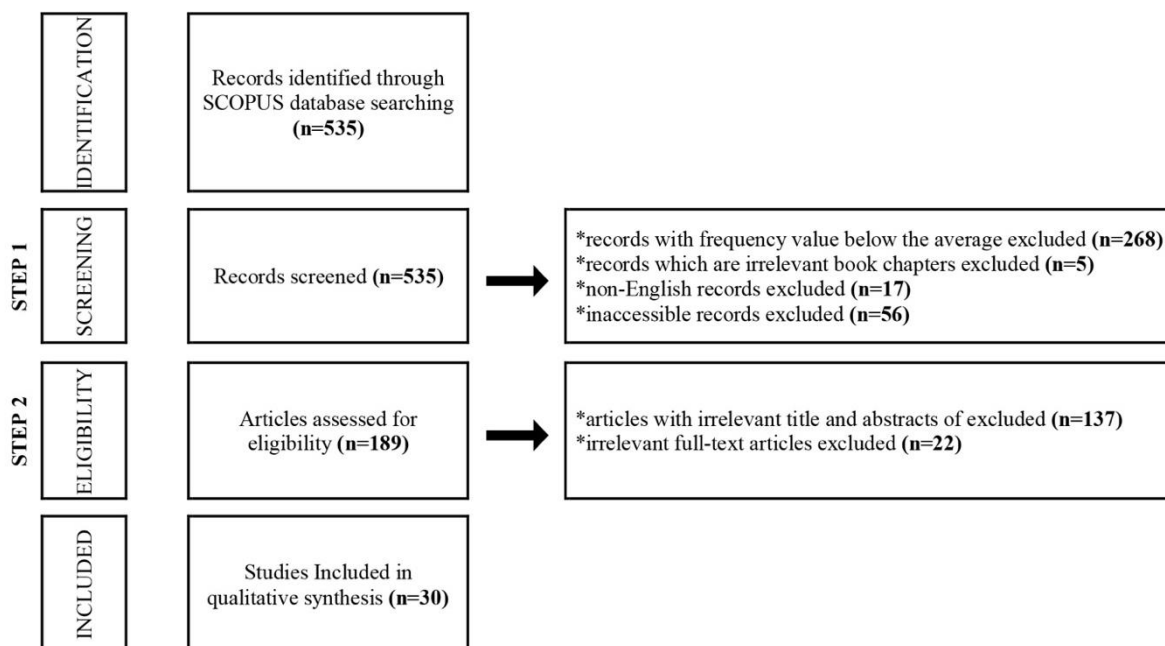
REVIEW QUESTION	MAIN QUESTION: What is the current role of urban planning and design in child-focused vision of urban environments?	
	SUB-QUESTIONS:	
	<input type="checkbox"/> What are the domains of research within child-focused urban planning?	<ul style="list-style-type: none"> • Policy domain? • Social domain? • Spatial domain?
	<input type="checkbox"/> What are the approaches of urban planning and design within child-focused urban environments?	<ul style="list-style-type: none"> • Participatory approach? • Participatory action research? • Co-production?
	<input type="checkbox"/> How are children and communities involved in the planning of child-focused urban environments?	<ul style="list-style-type: none"> • Storytelling? • Photo voice? • Participatory video? • Mapping?
POPULATION	Children (0-18 years) who live in urban areas: toddlers (ages 0–3), preschoolers (ages 3–5), school-aged children (ages 6–11), adolescents (ages 12–18).	
INTERVENTION	The role of urban planning and design: any domain of urban planning and design which has a role in child-focused vision of urban environments and public space.	
COMPARATOR	No comparison.	
OUTCOMES	Any positive or adverse child-focused urban environments-based outcomes related with any domains of urban planning, any subjective outcomes identified through analysis of child-focused vision of urban environments and public spaces.	
STUDY DESIGN	Qualitative Study. Participatory Research Methods. Primary or Secondary Data.	
SETTING	City: any suburbs' or city center's public spaces.	

Filtering Results

The 535 publications generated by the search underwent an elimination process. In the first elimination step, the researchers excluded 268 results based on having a below-average frequency of keywords (n=11) within the publications' title, abstract, and list of keywords. Additionally, we excluded 56 results because they were not readily available to the researchers, 5 results because they were irrelevant book chapters, and 17 results because they were not published in English. At the end of the first elimination step, 189 publications (including peer-reviewed journal articles, conference papers, and book chapters) remained.

The second elimination step assessed the relevance of the 189 publications' titles and abstracts, and 52 potential publications were retained. The researchers obtained the full texts of these remaining 52 publications and applied the inclusion criteria to them. As a result, we eliminated 11 publications due to the fact that none of their outcomes originated from the domain of urban planning; eight because they did not adopt a participatory methodological design; two because they pertained to rural environments; and one publication was eliminated for not having a participatory study design with children. Thus, 22 publications were eliminated from the study because they were not relevant to the research questions, resulting in a final sample of 30 publications included in this systematic literature review. The stages of exclusion are presented in a Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) flow diagram in Figure 1.

Figure 1. Identification of included studies in a PRISMA flow diagram



Results of the Review

Analysis of the included papers is presented in two steps. The first is a quantitative analysis which answers the "who, when and where" questions. The aim of this analysis was to interpret the institutional and geographical distribution of the focus on children's participation. The second step is a qualitative analysis of the focus and intentions of these papers, which answers this study's research sub-questions. The following section presents an overview of the most common domains, approaches, and methods of research within the practice of planning with children.

Findings of the Review (Quantitative)

The publication dates of the 30 studies ranged from 1995 to 2017 (see Appendix A). There has been a slight annual increase in publications focused on children's participation in urban planning since 1995 overall, but within the last three years, there has been substantial growth in the field with 11 new publications. The studies were mostly published by European publishers from the Netherlands and the UK, followed by North American publishers. Of the 30 papers reviewed, 12 publications were funded by non-governmental (58 percent) and governmental (42 percent) organizations. Interestingly, the last decade has seen a growth in studies funded by non-governmental organizations, which may be interpreted as a growing awareness about children's well-being in urban environments.

Close to half of the publications ($n=13$) reported results from multiple cases of secondary data. These publications aim to provide historical and critical reviews of children's participation in urban planning through different models such as children's councils and workshops. Furthermore, these publications adopt children's participation as the core of the research. The majority of publications ($n=17$) utilized participatory approaches but these fell into two categories: those based on (1) data collection without any spatial outcomes/ interventions, and (2) design processes with children with spatial outcomes. For example, seven of the 17 studies can be defined as experimental interventions inspired by community-based participatory research with a final product (e.g., redesign of a piece of a neighborhood or changing regulations), and which include data collection processes with children. Ten of the 17 studies provide in-depth explorations of the associations between children's well-being and their needs from the built environment. Overall, these findings indicate that the practice of planning with children that leads into practice is still rare. Data extraction appears to be the primary aim of the practice of planning with children, rather than pursuing research that aims to transform data collection into implementation.

The majority of publications were authored by individuals at research and higher education institutions (93 percent) and had first authors from North American (30 percent) and European (30 percent) institutions. Within the category of involving children in the creation of child-focused environments, there was a concentration of publications by authors from U.S. (nine publications) and Europe (21 publications). This may be the result of a geographical accumulation of this research area, but also demonstrates the match between the interest in and achievements around child-friendliness in European cities and the research on this topic.

Institutional affiliations of the first authors ranged over a wide field. There were ten different research areas including law, economics, and sports. Unsurprisingly, the majority of publications originated from departments in environmental design, but the wide range of the fields highlights the interdisciplinary nature of the research area.

Findings of the Review (Qualitative: The Focus and Intentions of Planning with Children)

By looking back at more than three decades of planning with children, Francis and Lorenzo (2002) outline a historical shift in children's participation in planning and design, moving from designing *for* children to designing *with* children by sharing power and responsibility. This study also identifies that the approach has become more proactive over time, looking to engage various actors (Francis & Lorenzo, 2002). Drawing from the literature review, this section of the paper focuses on the different approaches to the conceptualization of children, the processes whereby children have the chance to shape their environments, the different approaches to the planning with children, the methods used to engage children, and the outcomes of the planning processes described in the studies.

Conceptualization of Children

The ways children are conceptualized in this literature is based on trends in planning approaches and concepts. The studies included in this review varied in regard to how they treat children: as the bearers of needs and skills, the possessors of rights, consultants to educate adults, learners, and laborers (Appendix A). The most common way of conceptualizing children within the studied literature was accepting children as consultants to educate adults ($n=16$), followed by treating children as citizens who are possessors of equal rights ($n=10$). However, these different conceptualizations yield different results: the first acknowledges that adults can learn from children, while the second requires children to go beyond the role of educator to become active participants in the planning process.

When children are involved in the practice of planning, they are frequently treated as both educators and learners at the same time. This means that there are mutual benefits and learning opportunities for both children and adults (as documented by, e.g., Derr & Tarantini, 2016; Wilks & Rudner, 2013). This transforms the practice into a collaboration between children and adults in different roles and provides an opportunity for children to have a voice in shaping their environments. Within the identified literature, accepting children as consultants to educate adults was widespread. In this context, children are treated as partners and collaborators in the process (Adams et al., 2017; Pawlowski et al., 2017), researchers and environmental change agents (Malone, 2013), clients (Racelis & Aguirre, 2005), and active participants with the aim of educating adults (Francis & Lorenzo, 2002; Francis & Lorenzo, 2006; Ito et al., 2010; Nelson, 2008; Oliver et al., 2011; Severcan, 2015; Woolley et al., 1999). Additionally, children can become emotional laborers in the process of planning, as seen through the work of Bosco and Joassart-Marcelli (2015). These authors focus on the problematic side of only involving children as "consultants" rather than individuals with ideas and

knowledge.

Children, when accepted as citizens, have an acknowledged right to have a voice in decisions impacting their lives (Benninger & Savahl, 2016), to share their ideas and views about what constitutes good urban outcomes (McGlone, 2016), to be a stakeholder in planning and management of public space (Haider, 2007), to contribute to the place they inhabit (Derr & Kovács, 2015), and not be counted as unacknowledged outsiders (Spencer & Woolley, 2000), but to be regarded as equal to adults (Breitbart, 1995; Corsi, 2002; Horelli, 1997; Nieuwenhuys, 1997; Scholten et al., 2017; Simpson, 1997). All of these rights align with Article 12 of the UNCRC (1989), which establishes children's right to participation and inclusion into any issue related to them.

Accepting children as citizens usually combines the notion that children are the bearers of specific needs and skills, and this combination distinguishes them from adults. This notion puts special attention on the practice of planning with children. In this context, children are accepted as designers (Yao & Xiaoyan, 2017), acute analysts (Cunningham, Jones, & Dillon, 2003; Horelli & Kaaja, 2002) and experts (McGlone, 2016) of their environments. They are also viewed in the literature as silent spectators (Chatterjee, 2015), a distinct group with specific needs (Haider, 2007), a parameter for the quality of life of all citizens (Corsi, 2002), and a social category unto themselves (Alparone & Rissotto, 2001). It can be inferred that the way children are conceptualized is critical within research that affects the process of planning with children.

Processes of Planning with Children

In the 30 papers included in this review, the practice of planning with children is highlighted as being as important as the field of intervention, whether social, spatial, policy, or learning. The execution of the practice of planning with children brings along requirements such as collaboration that involves a high degree of diversity of stakeholders and disciplines and strong communication involving a high level of dialogue.

The focus on the process itself encourages common and case-specific challenges to the participation process and its potential benefits. The practice of planning with children is a process of collaboration that is connected with achieving a high degree of diversity among the participants (Corsi, 2002; Derr & Kovács, 2015; Nelson, 2008; Pawlowski et al., 2017; Racelis & Aguirre, 2005; Scholten et al., 2017). While planning processes with children are structured around collaboration as a presupposition, collaboration can occur in the process even if it was not the original intent (Scholten et al., 2017).

Besides collaborations among actors, participatory activities also occur within the context of an interdisciplinary collaboration process that involves disciplines such as geography, planning, art, history, and architecture (Breitbart, 1995). According to Pawlowski and colleagues (2017), the practice of planning with children challenges interdisciplinary collaborations by bringing different disciplines together to achieve a joint aim. In addition, the literature revealed that multidisciplinary collaboration is

common, and most frequently occurs between scholars from environmental design and the social sciences. This kind of interdisciplinary collaboration in the practice of planning and design with children delivers outcomes from the social domain of planning.

The practice of planning with children requires multiple perspectives and actors, including stakeholders, children, adults, design professionals, and decision makers (Francis & Lorenzo, 2006). Within the group of adults, parents are one of the most critical participants. By involving parents in the process, researchers can assess whether children's exclusion from public space is partly caused by parental fears. There is also a need to encourage parents to think about ways through which children can be made more visible within cities (Francis & Lorenzo, 2002) and, importantly, what is currently missing in this regard. Although the importance of having multiple levels of diversity within the stakeholder group is essential (Derr & Tarantini, 2016), researchers such as Bosco and Joassart-Marcelli (2015) have identified a possibility that the voices of children could be diluted when there are too many stakeholders involved. These concerns should be kept in mind when executing the practice of planning with children to ensure the process remains focused first and foremost on the wants and needs of the children.

Communication plays an important role and needs to be considered at every stage of the planning process, from idea formation to implementation and beyond (Corsi, 2002). This is because, in order to be willingly involved, children require a process that is explanatory and active (Alparone & Rissotto, 2001). Communication thereby becomes both a critical factor in the practice of planning with children (Alparone & Rissotto, 2001; Derr & Tarantini, 2016; Haider, 2007; Horelli, 1997) and can also be the outcome of the process (Corsi, 2002). Communication constantly needs translation from children's language to adult language (and vice versa), regardless of scale and age. This necessity requires the existence of an adult facilitator to coordinate the process, facilitate the communication, and create links between children and the institutionalized world (Alparone & Rissotto, 2001).

Shared power in the practice of planning with children is critical. When planning with children, the level of dialogue between the adult facilitator and child collaborators can also function to determine the sharing of power. For example, Derr and Tarantini (2016) caution against hierarchical relations within the practice of planning that can affect the active participation of child collaborators. When their ideas are not embraced, their words and emotions can become lost in the planning process and never be imported to the real world. To address this problem, Derr and Tarantini (2016) suggest that the planning process should involve the sharing of information, dialogue between parties, and reflection. Researchers and practitioners therefore need to enable children to share their ideas by creating effective and inclusive environments for participation.

Communication between parties can be facilitated through assisting adults where a shift in power-sharing is needed (Wilks & Rudner, 2013), with some limitations in terms of what the adult actors can and cannot do (Alparone & Rissotto, 2001; Bosco & Joassart-Marcelli, 2015; Corsi, 2002; Francis & Lorenzo, 2006;

Nieuwenhuys, 1997). Though the assumption that children are not capable of acting in their own best interests is (still) widespread, the researcher/facilitator should play the role of mediator while avoiding being a figure of authority and control (Nieuwenhuys, 1997). In this manner, the facilitator can act as the bridge between the institutional world and the children's world by protecting the children's experiences from possible exploitation (Alparone & Rissotto, 2001). However, it is important that this is done without ignoring children's autonomy (Corsi, 2002) and by respecting children's views and values (Haider, 2007).

Approaches to Planning with Children

Based on the reviewed literature, three related approaches can be identified within the practice of planning with children. These are participatory planning research, participatory action research (PAR), and co-production. The order in which these approaches are presented here also reflects the frequency with which they occur in practice and the degrees to which children are involved in them. The studies included in this review mostly define their approaches as "participatory planning" or "participation in planning" (Alparone & Rissotto, 2001), which differ slightly from each other in terms of methods and research aims. Christopher Spencer in Bishop and Corkery (2017, p. iii) indicates that the intentions of this research can be "researching children's needs or turning such research into practice." McGlone (2016) uses what they refer to as "the mosaic approach" in their research. Meanwhile, Bosco and Joassart-Marcelli (2015) use a wide range of methodologies and flexible approaches. What they all have in common is that the studies aim to discover the needs of children through children's participation in planning for urban environments.

Participatory planning research can be defined in these studies as the action of planning or re-thinking exercises about urban environments with children. Although participatory planning research with children can provide a power-sharing platform that reduces barriers between researchers and children (Wilks & Rudner, 2013) and aims to give voice to children to collect their knowledge, experience, and perspectives (Derr & Kovács, 2015), Wilks and Rudner (2013) warn that this approach can include a tendency towards tokenistic consultation processes. Manipulation may also occur in which children's emotions are devalued through emotional geographies underlining children's participation (Bosco & Joassart-Marcelli, 2015). In contrast, examples from Pawlowski et al. (2017), Scholten et al. (2017), and Yao & Xiaoyan (2017) accept children as participants and central actors rather than informants through activities like games or building gardens.

PAR, the second approach that is frequently adopted, is also sometimes misused. If the practice of planning with children leads to a level of power sharing in decision-making, this could be classified as active research (Nieuwenhuys, 1997). However, consultation with children is not enough to constitute a PAR agenda with children. The point PAR aims to make is that children need to be empowered and encouraged to take action in the process and bring about the desired changes (Severcan, 2015). In this context, "action" refers to collective action rather than individual, which is essential for identifying collective desires, including those of participating children (Nieuwenhuys, 1997). Four studies within the reviewed literature (Adams et

al., 2017; Derr & Tarantini, 2016; Malone, 2013; Severcan, 2015) define their approach as participatory action research. Examples of PAR in the reviewed literature include community-based action research and a research workshop activity.

In practice, one step beyond PAR is co-production. While participatory planning research focuses on user involvement and listening to children's wants and needs, co-production is about making joint decisions and joint implementation. In other words, while it includes participation, co-production with children also involves children throughout the entire process rather than only at selected points. A crucial feature of co-production is the collaborative development of the project. Ito and colleagues' (2010) multifunctional landscape planning project exemplifies this approach. The project included children from the outset through workshops, culminating with a biotope constructed by children for a school garden. In addition to environmental learning and ensuring active participation, outcomes obtained through joint efforts (spatial and social) are also expected when planning with children through co-production.

Methods Used to Engage Children in Planning

Identifying the most optimum method based on the age group of the children involved is a critical consideration when designing a planning process with children. Among the literature included in this review, four age groups of children were identified: toddler (1-3 years old), preschooler (3-5 years old), school-aged (6-11 years old), and adolescent (12-18 years old). School-aged children are the most widely represented group in the reviewed literature. The least represented groups are preschoolers (two studies), and toddlers, which were not studied in the reviewed literature. The practices of participatory planning vary widely according to these age groups. These variances arise as the two youngest age groups necessarily include the involvement of caregivers as well, whether parents, grandparents, or child-minders. These children also require supervision and a targeted exercise that can determine the process and methods for engagement. In contrast, older children can be more independent and may require less supervision.

According to the selected literature, there is a correlation between approaches to the conceptualization of children's age groups and the methods used in the planning process. As seen in Appendix A, in these studies, while preschoolers and school-aged children are often conceptualized as consultants to educate adults, adolescents are more often regarded as adults or citizens. This also leads to using more expressive and conversational research methods with older children.

Horelli (1997) reports that there has been a paradigm shift in urban planning and design that allows researchers to design new methods; she defines six different methodologies utilized in the practice of planning with children. These are diagnostic, expressive, situational, conceptual, organizational, and political methods.

- Diagnostic methods are analytical tools for evaluating environmental and personal variables (e.g., questionnaire, interview, and observation);

- Expressive methods contribute to the communications between and within groups by encouraging participants to express their ideas (e.g., drawing and mapping);
- Situational methods form the basis for collective situations, making learning easier and visualizing current situations to make negotiation easier (e.g., discussion and field trips);
- Conceptual methods aid in abstract thinking and have the potential to enhance the learning skills of children (e.g., model making);
- Organizational methods support the implementation of results of the participatory activities (e.g., children's city council);
- Political methods are tools used by participants that can affect policy and the level of influence an individual/group can have on the process (e.g., children's forum).

The review classified methods by age groups and found that expressive methods focused on visual expression have been intensively used in planning with children (Appendix A). One of the most common expressive methods is drawing, which is used frequently with preschoolers and older children. For school-aged children, expressive methods are more expansive and include photography, collage making, diary writing, mapping, and presentation. Benninger and Savahl (2016) report that visual methods are very effective with children and provide opportunities for different forms of communication. They also highlight the importance of using a range of research methods when working with children to emphasize that methods can determine outcomes. Derr and Tarantini (2016) state that media-based methods like photovoice enable participants to engage more actively while providing a platform for dialogue. They also report that children favor interactive methods such as model-making, which is a conceptual method. Discussion, as used in several of the studies included in this review (i.e., Bosco & Joassart-Marcelli, 2015; Chatterjee, 2015; Malone, 2013; Racelis & Aguirre, 2005; Wilks & Rudner, 2013) is the most-used situational method within the reviewed literature. In addition, diagnostic methods such as informal observations and interviews are used for in-depth understanding of children and their needs (Chatterjee, 2015). Presentation, which is an expressive method, can inherit the value of political and organizational methods when the presentation is given to governmental organizations such as city councils instead of being delivered within the research group. The presentation could be given by urban designers who are involved in the practice of planning with children (e.g., Derr & Tarantini, 2016) or by children themselves (e.g., Nelson, 2008). Finally, children writing letters to city councils (Derr & Tarantini, 2016) can be regarded as a political method that has the power to affect policy-making.

The Outcomes of Planning with Children: Social, Spatial, Policy and Learning

It is expected that the process of planning with children will generate outcomes for the participating children such as: gaining knowledge about social problems, social rights, and bureaucracy; acknowledging place caring; gaining a sense of self-development; and improving their relationship with the institutional world. The following section outlines the outcomes derived from the review, which have the

potential to enhance children's involvement in urban planning practices. This section also discusses the benefits children and the larger community can gain from participating in the urban planning process.

Through participation, children can enhance their sense of self by exploring their environment and feeling they are a part of their larger community. Malone (2013) has found that, in contrast to the common belief that children favor watching television and playing computer games at home, children do like being outside and interacting with others. A benefit of interacting with others is that it helps children develop their sense of self. The notion of sense of self is frequently mentioned in studies by referring to self-efficacy (Benninger & Savahl, 2016; Racelis & Aguirre, 2005; Severcan, 2015); sense of pride (Benninger & Savahl, 2016; Breitbart, 1995); self-identity and sense of self (Benninger & Savahl, 2016); sense of civic responsibility (Haider, 2007); and sense of purpose and sense of hope (Racelis & Aguirre, 2005). Within all of these concepts, the development of children's sense of self is expected to occur during the participatory planning process or by the end of the process as a result of participation.

Although recent research on planning with children has focused on the process itself and frequently seeks outcomes within the social domain, this line of research has also produced an understanding of the required spatial characteristics for child-focused urban environments. There are some specific places, such as their home and the homes of friends and family, school and school-related places, community centers, church, shopping centers, and sports fields that have importance in children's daily life (Benninger & Savahl, 2016; Oliver et al., 2011).

Interestingly, safety and mobility are the most studied and emphasized aspects of children's use of public space. Most authors from the reviewed literature agree that the feeling of safety and the ability to reach safe public spaces impact the visibility of children (Adams et al., 2017; Francis & Lorenzo, 2002; McGlone, 2016; Oliver et al., 2011; Severcan, 2015; Woolley et al., 1999; Yao & Xiaoyan, 2017). However, Francis and Lorenzo (2002) and Yao and Xiaoyan (2017) believe that when parents fear their children could be unsafe in a situation, it drives parents to provide their children with more structured, supervised activities such as sports and music. Francis and Lorenzo (2002) refer to these kinds of activities as "adultization of childhood" (p. 159). Children attach importance to socialization and request places for it, but the feeling of being unsafe, combined with a lack of mobility opportunities, makes socialization and play difficult in urban areas. Therefore, places that are located close to home, which forms the heart of a child's life, are not only accepted as safer but also make moving to and from these locations more convenient (Francis & Lorenzo, 2006).

Along with safety requirements, children are in need of public spaces for play and socialization that are clean (Benninger & Savahl, 2016; Racelis & Aguirre, 2005; Yao & Xiaoyan, 2017), green (Adams et al., 2017; Benninger & Savahl, 2016; Bosco & Joassart-Marcelli, 2015; Chatterjee, 2015; Derr & Kovács, 2015; Derr & Tarantini, 2016; Francis & Lorenzo, 2002; 2006; Ito et al., 2010; Malone, 2013), unstructured and flexible (Bosco & Joassart-Marcelli, 2015; Francis & Lorenzo,

2006; McGlone, 2016), and multi-purpose (Derr & Kovács, 2015; Francis & Lorenzo, 2002). Researchers have also shown the importance of having water-related activities, such as paddling, boating, swimming, or interactions in fountains or pools (Bosco & Joassart-Marcelli, 2015; Breitbart, 1995; Derr & Tarantini, 2016; Francis & Lorenzo, 2002; Ito et al., 2010). These spatial outcomes depend on the geographical and cultural context of the papers reviewed. However, providing clean, green, and unstructured public spaces for children (which is, in the end, beneficial for society at large) is considered a core asset of urban environments for children to utilize (UNICEF, 2012).

Children enjoy having adventures. Their adventurous nature means their experiences involve safety and risk factors that often contradict parental safety concerns. Flexibility and openness of unstructured activities within places are essential for children's engagement as well as their enjoyment. Unstructured settings support children's engagement in semi-structured play such as climbing, jumping, gardening, skipping rope, and writing with chalk more than traditional play settings do (McGlone, 2016). Having adventures in nature or natural surroundings and interacting with animals are appreciated by children (Malone, 2013). Places that are diverse in form, materials, and uses are also valued, as children prefer flexible, mixed-use places over mono-functional zoning (Francis & Lorenzo, 2006). Furthermore, children wish to interact with others from different age groups and cultures. Creation of these kinds of places requested by children requires policies that perpetually provide updated spatial and social regulations for child-focused urban environments.

Building child-focused cities is not only about space, but also about policy and laws (Yao & Xiaoyan, 2017). To enhance the child-friendliness of cities, it is necessary to promote children's participation with proper approaches and to explore effective planning and design strategies. Policies are the key to guaranteeing desired outcomes that require explicit support from governments (Horelli & Kaaja, 2002). Empowering children by giving them a voice (Woolley et al., 1999)—for example, through youth consultation committees—is considered an excellent way to involve children in planning and design issues. These committees can also enable participation in their environments through policy at the national level (Simpson, 1997).

The practice of planning with children needs to embrace a diverse range of methods in order to reach children with different skills and interests (Derr & Kovács, 2015). For example, the practices that encourage children to think "out of the box" and offer solutions for complex problems about their environment (Scholten et al., 2017) are becoming increasingly important. Enhancing teamwork and decision making; delivering environmental learning (an important outcome for creativity); enabling respect for cultural differences (Breitbart, 1995); and providing the opportunity to learn about local government, laws, and bureaucracy (Nelson, 2008) are some possible outcomes that may gradually transform into life-long practice and values. For example, Wilks and Rudner (2013) speculated whether children's learning from the practice of planning could be transferred to the school curriculum to ensure continuity of the process and to reinforce official education. Additionally,

the practice of planning with children could have learning benefits for other actors such as city council members, teachers, and research team members. Derr and Tarantini (2016) refer to this process as "co-learning." Co-learning helps adults make realistic assumptions about children's needs (Wilks & Rudner, 2013). As a result, the more children participate in planning activities, the more their knowledge about social issues grows (Alparone & Rissotto, 2001), the more place knowledge (Severcan, 2015) and institutional knowledge are expanded; and thereby the children become more active and empowered (Malone, 2013).

Discussion and Conclusion

This systematic review resulted in (1) a comprehensive, quantitative picture of the current studies focusing on the participation of children; (2) an effective way to conceptualize children in planning; (3) a list of requirements for the successful practice of planning with children and the larger community; (4) discussion of the link between urban planning, methods, approaches, and outcomes for child-focused urban environments; (5) identification of existing gaps in the literature; and (6) examination of the role of policies and the link between policies, urban planning, methods, and approaches for further research. Each of these is summarized below.

Quantitative Overview

This review provided evidence-based data on child-focused thinking and planning from 30 publications between 1990 and 2017. It was highly evident that over the last 10 years, children have become increasingly involved in urban planning, but their involvement level is inconsistent. At the very least, there is a growing awareness about children's well-being in urban environments that is taken into account at different levels in areas such as planning, design, and policy. This can be seen through publication rates, variety within the fields of study, institutions funding the research, funding rates and accumulation of funding opportunities in last decade, and the geographic spread of publications. These elements attest to the importance of child-focused visions of urban environments and the roles children play in this process.

Conceptualization of Children

Conceptualizations of children dictated the design of the reviewed research as well as its outcomes. When children are conceptualized as citizens and bearer of skills, participatory urban planning and design can adopt the roles of mediation and action. For these actions to be successful, they need to take the following into account: the level of communication, shared information, dialogue, reflection, and a shift in power-sharing from the adult to the child. As seen from the reviewed study outcomes, the majority of researchers focused on the process, not only the outcomes. Also, it was not critical to have spatial outcomes from the process of planning with children because the process also has educational and practical outcomes for children (and adults). This leads to a process wherein although the adults are in charge, children are the guides to educate the adults. It appears the main issue is the need to educate adults to allow children to represent themselves. Accepting children of all age groups as citizens endows them with the rights that adults have, but institutional settings have yet to be adapted to reflect this capacity of children.

Requirements for a Successful Practice of Planning with Children

The requirements for a successful practice of planning with children include high levels of communication, a high degree of diversity among participants, and collaboration among both community members and between disciplines. The issues considered necessary in the practice of planning with children are also qualities that are needed for sustainable communities. In line with creating sustainable environments and communities, participatory planning with children encourages multidisciplinary approaches, multiple actors, transparency, and sharing of responsibility. Hence the adage, "what is good for children is also good for society at large." In addition, the social, spatial, political, and educational outcomes obtained through the process of planning with children contribute to creating and maintaining communities.

Link between Methods, Approaches, and Outcomes

To achieve an active participatory process, the environment within which these activities takes place needs to function to minimize the involvement of adults and employ more expressive (e.g., drawing, collage making, mapping, and presentation) and tactile (touch and smell) methods. These methods are also an indicator of a process that centralizes the role of children as leaders of the process rather than just consultants. This review demonstrates that there is a need for more exploratory and expressive approaches in which children are in the center of the discourse with urban planning and design playing the role of mediator or tool. Children are the future, so planning and design with children should play a more significant role in shaping the future of cities.

Existing Gaps in the Literature

A critical finding pertained to the age groups of the children involved, as toddlers were the least represented age group in the reviewed literature. The built environment is critical for the psychological and physical development of toddlers, and with little or no research in this area, this can be identified as a clear research gap. This gap can be addressed through interdisciplinary collaboration between the fields of child development and the built environment (planning/design/policy) to include feedback from toddlers and their caregivers. As previously discussed, older children (age 5+), conversely, need to represent themselves rather than being represented by adults.

The Role of Policy

The role of local, national and international policies is crucial for successful implementation of the practice of planning with children. There is a need for further research on policies from different levels and their success (or failure) in the implementation of children's involvement in planning. The combination of supportive policies and expressive approaches and methods within the practice of planning with children can encourage the creation of child-focused environments.

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Appendix A.

Legend		primary approach		secondary approach

No	Author (Year)	CHILDREN AS					design with or for them	methods in common	age group
		bearers of needs & skills	possessors of rights	educators of adults	learners	labor			
1	Derr & Tarantini (2016)			children as social agents - mutual benefits	children as social agents - mutual benefits		with	Expressive Methods: • Drawing	preschoolers: 3-5 years old children
2	Malone (2013)			children as researchers and environment change agents					
3	Oliver et al. (2011)			children as active agents				Diagnostic Methods: • Questionnaire • Interview • Observation Expressive Methods: • Drawing • Photography • Diary • Collaging • Mapping • Presentation Situational Methods: • Discussion • Field trips • GPS Conceptual Methods: • Model making	school aged: 6-12 years old children
4	Ito et al. (2010)			children as active participants					
5	Cunningham et al. (2003)	children as acute observers and analysts of their environment		children as consultants					
6	Racelis & Aguirre (2005)			children as clients					
7	Francis & Lorenzo (2002)			children as active participants		with			
8	Woolley et al. (1999)			children as participants					
9	Pawlowski et al. (2017)			children as partners of the co-design process		with			
10	Derr & Kovács (2015)		children as citizens who have rights to contribute to the places they inhabit						

1	Derr & Tarantini (2016)			children as social agents - mutual benefits	children as social agents - mutual benefits		with	
11	Benninger & Savahl (2016)		children as citizens who have the right to have a voice in decision concerning their lives					
12	McGlone (2016)	children as the experts of their own lives and experience	children as active citizens with thoughtful views about what constitutes good urban outcomes					
13	Severcan (2015)			children as active participants for purposes of empowerment and taking action				school aged: 6-12 years old children
14	Bosco & Joassart-Marcelli (2015)				children as emotional labor			
15	Wilks & Rudner (2013)			children as valid informants of their own world.	children as valid informants of their own world.			
2	Malone (2013)			children as researchers and environment change agents				

16	Horelli (1997)		children as adults					Expressive Methods: <ul style="list-style-type: none"> • Mapping • Photography • Presentation • Collaging • Drawing Situational Methods: <ul style="list-style-type: none"> • Field trips • Meeting
17	Breitbart (1995)		children as citizens				with	
1	Derr & Tarantini (2016)			children as social agents - mutual benefits	children as social agents - mutual benefits		with	
18	Adams et al. (2017)			children as collaborators who possess agency			for	

19	Scholten et al. (2017)		children as adults of future	children as adults of future					
20	Yao & Xiaoyan (2017)	children as designers							
21	Chatterjee (2015)	children as silent spectators				For			no age group info
22	Nelson (2008)			children as active participants to develop materials to evaluate the communities around their schools					
23	Haider (2007)	children as a distinct group with specific needs	children as important stakeholders in the planning and management of public space						
24	Francis & Lorenzo (2006)			children as active participants					no case study
25	Corsi (2002)	children as a parameter for the quality of life of all citizens	children as active citizens						
26	Horelli & Kaaja (2002)	children as sharp analysts of their settings							
27	Alparone & Rissotto (2001)	children as a social category							
28	Spencer & Woolley (2000)		children as citizens not as unacknowledged outsiders						no case study
29	Simpson (1997)		children as adults who possess many rights						
30	Nieuwenhuys (1997)		children as equal as researchers in the process						