10 Children's Perception of Their City Centre
A Qualitative GIS Methodological Investigation in a Dutch City

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CONTENTS

10.1 INTRODUCTION

Despite the recent sociological change in the concept of 'childhood', which views children as active social beings (Prout, 2005), and increasing international recognition of the importance of creating environments that respond to their needs (UNICEF, 1989,1996), children's experiences are usually invisible in urban discourses, relegated to the margins. Failure to incorporate their experiences in planning policies may contribute to the production of urban environments where children are excluded, become alienated and experience a decrease in their independence of mobility (Christensen and O'Brien, 2003; Gleeson and Sipe, 2006; Kyttä, 2004; Matthews, 1992).

This chapter presents a participatory qualitative approach for capturing children's perceptions of their local living environment in a geographic information system (GIS). We demonstrate this qualitative approach (qGIS) with a case study in the city of Enschede, the Netherlands. This study is the result of close collaboration between us and teachers of the local international school in Enschede. The international school was selected to ensure ease of communication, since the research needed to be conducted in English. In particular, we focused on how children perceive the city centre of

Enschede. Our motivation in choosing the city centre was twofold. First, it would be a location familiar to all the children participating in the research. Second, the city centre has an important role to play as public space, where children are able to experience the social and cultural diversity of the city (Freeman and Tranter, 2011).

10.2 CHILDHOOD BEYOND A DICHOTOMOUS FRAMEWORK

The concept of childhood has not always been static but has rather been contingent on local contexts that vary spatially and temporally. In its current state, it is defined within a dichotomous framework constituting children as the contrasting social other of adults, rendering them from this point of view as dependent, incompetent, passive and in need of protection (Prout, 2005; Stasiulis, 2002). This notion provided the backdrop required to standardise their needs and contributed to their continuous socio–spatial and cultural/political separation from the material practices and spaces of adults (Aitken, 2005; Oswell, 2013). However, one can argue that this concept is ever changing and evolving because of its interconnectedness with the unstable social, economic and cultural conditions of postmodern societies, thus leading to different experiences of childhood in different contexts (Prout, 2005). Scholars have therefore suggested that the absence of a universal experience of childhood challenges the currently constructed and accepted concept of childhood, rendering it outdated and in need of reconceptualization.

At some point in time between Ariès' claim of the modern invention of childhood (Ariès, 1962) and Postman's declaration of the end of it (Postman, 1985), our understanding of childhood started to shift. Acknowledgement of the proliferation of childhood experiences across multiple axes of differences (for example, cultures, classes, ethnicities and genders) led to a socially constructed notion of childhood that was deeply implicated in social, cultural, economic, political and institutional processes, and from this notion a new paradigm of childhood crystallised (Prout, 2005). The paradigm conceives children to be social beings in their own right instead of being measured against the views of adults and adult social structures. It requires us to challenge our perception of being adult and encourages us to explore children's own perspectives by acknowledging the limitations of our own cognitive construction of childhood and its associated experiences. (James, 2004; Prout, 2005).

This modern social construct, coupled with an increased collective international awareness of children as human beings with agency, was translated into multiple international policies and pieces of legislation, with *The Convention on the Right of the Child* the most prominent. Established in 1989 and ratified by 140 countries, *The Convention* calls for children (individuals under the age of 18) to be independent subjects with rights to a voice in matters than concern them; see in particular Article 12 and Article 13 in *The Convention* (UNICEF, 1989). The establishment of *The Convention* was not only important in explicitly recognizing the right of meaningful participation for children but also set a new record of viewing children as active citizens and 'full human beings, invested with agency, integrity, and decision-making capacities' (Stasiulis, 2002, p. 509), rather than invisible beings in need of discipline and control by adults (including researchers!).

10.3 CHILDHOOD AND THE CITY

The gradual shift in the perception and construct of childhood just described was witnessed in the city as well. Gillespie (2013) notes that children's integration in their city generally, and in the street specifically, was initially unproblematic, as rather a natural extension of their integration in the private realms of their private homes. As a consequence of the reform movements that grew in the 19th century, children's place in the city started to be contested as problematic with the emergence of segregated, private spaces. Gillespie argues – based on theses of 'recovered histories' – that children's segregation (like many other social norms) is a recent, culturally constructed norm (Gillespie, 2013). Of course, the alienation of children was further reinforced in many cities (particularly after the Second World War) with the priority given to the automobile and subsequent zoning bylaws that

separated the home from places of schooling, leisure and recreation. Nevertheless, this regulation of public space through surveillance, privatizing and limiting access and, as a consequence, exclusion did not stop children from contesting, occupying and reproducing their local spaces in many ways (Valentine and McKendrick, 1997).

It is therefore easy to recognise that a focus on children's wellbeing in the city accompanied the industrial revolution (and the establishment of the welfare state and its associated reform movements), which emphasised material improvement for all vulnerable groups – including children (Gleeson and Sipe, 2006). In academe, this development translated into a series of studies that drew attention to the experiences and needs of children in their cities (see, for example, works by Ward 1977 and Lynch 1976). According to Gleeson and Sipe (2006), this continued well into the 1980s with explorations of the environmental impact of cities on children's wellbeing. However, the fragmentation of modern institutions that took place in postmodern societies characterised by globalization and individualization resulted in a continuous blurring of the distinction between adulthood and childhood (Lupton, 1999). This blurring was marked at many sites, and as a result, children were successfully negotiating their agency and presenting themselves as competent actors. Most notably in the realm of the home, as demonstrated by the transition to 'negotiated families', but also in the market as consumers 'owning' specific patterns of consumption, and in the social realm as they developed their own subcultures (Atiken, 2005; Jans, 2004; Lupton, 1999;).

As discussed earlier, this prompted the development of policies that recognise the new positioning of children. According to Stasiulis (2002, p. 509), *The Convention on the Rights of the Child* succeeded in setting a new vision of children as active citizens with agency and decision-making capabilities, rather than invisible beings in need of discipline and control by their parents and the state. This view was further established in Chapter 25 of *Agenda 21*, in which the importance of the active involvement of children in promoting economic and social development, as well as their environmental protection, was asserted. Moreover, to ensure the translation of these adopted policies into practical programmes at the local level, UNICEF (1996) established Child-Friendly Cities – an initiative with the sole purpose of helping cities promote children's rights (including the right to participate in decision-making processes).

This resulted in renewed interest in children's geographies, the difference being that studies were based on a new, socially constructed notion of childhood. This meant that researchers became more interested in understanding children's grounded experiences through the utilization of ethnographic methods (Holloway, 2014).These studies indicate that children have excellent knowledge of their living environment and not only are able to identify issues that matter to them but are also capable of suggesting solutions that best address these issues (Laughlin and Johnson, 2011; Lynch and Banerjee, 1977; Travlou et al., 2008; Veitch et al., 2007; Walker et al., 2009).

10.4   PARTICIPATORY PLANNING AND CHILDREN'S INSIGHTS

Although there is no definitive consensus on what constitutes effective participation in planning activities (see Arnstein, 1969; Monno and Khakee, 2012), many advocates see numerous benefits in engaging the public in participatory activities. These benefits include: empowerment of citizens that results in a continuous cycle of engagement (Oldfield, 1990); the potential of the process to be educative, leading to the development of appropriate knowledge and attitudes towards active citizenship (Day, 1997); the affirmation of democracy (Williams, 1976); and the provision of local knowledge necessary for planners to build a complete picture in their planning process (Burke, 1979). Perhaps more importantly for planning scholars, participation affords an opportunity for 'a transformative and deliberate learning and participatory action research', as Forester (1999, p. 6) puts it.

As a result, participatory planning has been growing in recent years in many parts of the world, with a number of successful examples in the U.S., Brazil, Norway and Venezuela, to

name but a few (Forester, 1999). Unfortunately, children are not always considered in the participatory process. In fact, they are almost 'invisible' because of the misconstrued belief that children lack the skills needed to effectively participate (Simpson, 1997). Nevertheless, an increasing number of planning scholars have investigated participatory activities with children (see, for example, Cele, 2006; Chawla, 2002; Kyttä, 2004; Lynch and Banerjee, 1977). Categorised by Knowles-Yánez (2005) as being scholarly and non-rights-based approaches to participatory planning, for most of these studies the term *consultation* would be most applicable. According to Driskell (2002), however, even though children were not directly involved in decision-making per se, these studies could be considered as meaningful forms of participation as long as they fulfilled three criteria: that the children understand why they are taking part in the participatory activity; that they have the choice of not participating; and that they are informed about the results.

Numerous examples exist for the use of a variety of participatory methods to engage children in planning processes. Celea (2006), for example, examined children's environments using methods that include focus group discussions, guided walks and studying photographs and drawings made by the (Swedish and English) children in their attempt to understand how they experience and use space in their local neighbourhoods. Kyttä (2004) used open-ended interviews to determine the extent of independent mobility afforded to children in their environment. While Wridt (2010) and Chawla (2002) used participatory mapping, Lynch and Banerjee (1977) used daily recordings written in diaries by the children themselves. More recently, many researchers have attempted to employ technology in an effort to streamline the participation process. Santo, Ferguson and Trippel (2010), for example, trained children to use technology in order to collect data, analyse the information and create maps with computers to register their perceptions of their neighbourhoods. In an earlier study, Berglund and Nordin (2007) developed a method for children to map and record their perceptions in a child-friendly computerised GIS, thus facilitating the process of bringing their insights to the official planning process.

All these examples illustrate the potential qualitative and quantitative methods have to access children's knowledge and engage them in the planning process. The concern then becomes focused on the adaptability of these methods to children's needs and their experiences of their environment, without subjecting them to adult-centric communication and setting bias.

10.5   QUALITIES OF THE LOCAL LIVING ENVIRONMENT ACCORDING TO CHILDREN

One of the prominent studies involving children and adolescents in evaluating their local living environment was done by Lynch and Banerjee (1977) in the 'Growing Up In Cities' (GUIC) project. This project was revived in 1996 by *The Convention on the Rights of the Child* and reaffirmed in *Agenda 21*, which focused on documenting improvements or deterioration of the living environment compared to the situation in the 1970s. The project resulted in the formulation of indicators of social and physical qualities of the local environment (a term that encompasses spaces that children live in, play in or regularly visit) based on the evaluation of the children themselves; qualities can be social or physical, positive or negative (Chawla, 2002). Together, this results in four quadrants – see Figure 10.1 – representing the living environment of the children.

These qualities were the result of the experiences and evaluation of 10–15-year-olds in low- or mixed-income urban centres in several cities in both developed and developing countries. Table 10.1 summarises the qualities and definitions used in Figure 10.1.

Although the framework presented in Figure 10.1 was developed with a focus on residential neighbourhoods, one can argue that such qualities can also be present in a variety of urban settings – including city centres.
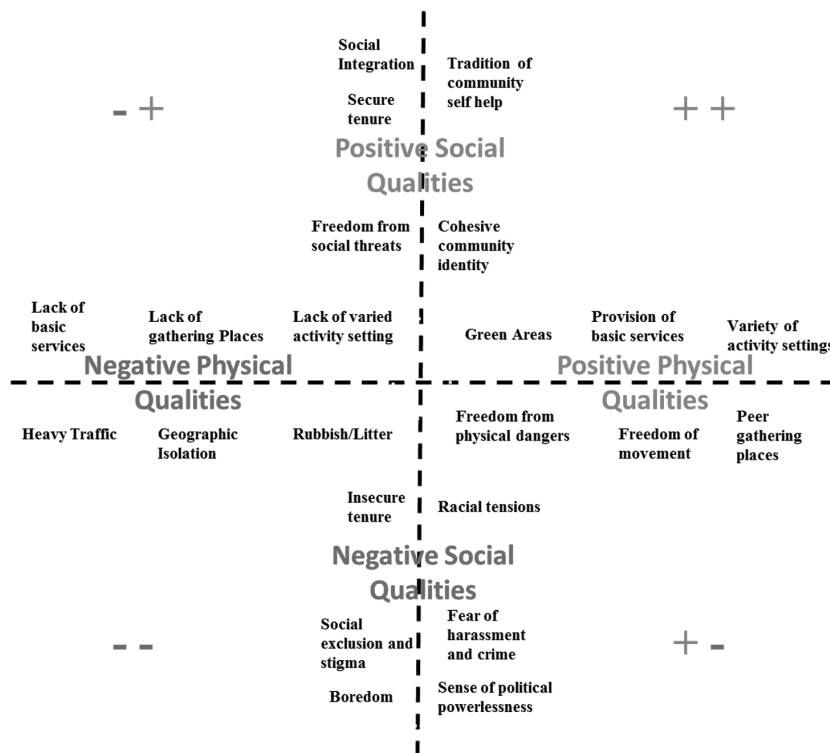
FIGURE 10.1 Qualities of the living environment according to children (10–15-year-olds) (after Chawla, 2002). (Source: Alarasi et al. (2016). Copyright 2016 by Taylor & Francis. Reprinted with permission.)

10.6   CASE STUDY AREA

BOX 10.1   Case Study Area

Enschede is located in the east of the Netherlands, close to the German border, and is the largest city in the province of Overijssel. Enschede covers an area of approximately 143 km^2. It is a medium-sized city of 158,000 inhabitants (Kennispunt Twente, 2014) and is subdivided into five administrative districts: *Noord*, *Oost*, *Zuid*, *West* and *Centrum*.

The case study area, the city centre of Enschede, is a part of the district *Centrum*, which covers an area of approximately 0.54 km^2 and has a population of 3,125 inhabitants (CBS, 2016). The city centre is mostly a car-free zone and is pedestrian- and bicycle-friendly. The centre includes an open square, the historic 'Oud Markt', that surrounds an old church. Several public services border the area, such as bus and train stations and parking facilities for cars and bikes, giving city residents (including children) easy access to and from the centre. A variety of services are concentrated in the city centre, including modern shopping

> centres, restaurants, bars, hotels, cinemas, a casino and a music centre. It was selected as the case study area, first, because it is a location familiar to all the children participating in the research. Second, it has an important role as a public space where children can experience the social and cultural diversity of the city (Freeman and Tranter, 2011).

Enschede is located in the east of the Netherlands, close to the German border. It is a medium-sized city with around 158,000 inhabitants (Kennispunt Twente, 2014). Since the 1980s, efforts have been made to revitalise Enschede, transforming it into a modern city with a focus on knowledge-intensive industries and institutions of higher education (Enschede-Stad, 2014).

In the mid-1990s, the municipality launched a comprehensive redevelopment plan for the city centre. Motorised traffic was diverted away to create a car-free zone and a large market square was constructed, which now functions as a 'node' for the city centre (Hospers, 2010) and has characteristics of themed public spaces, for example 'funshopping' (Van Melik, 2009). The area around the railway station was earmarked for office use and a new bus station was created. Cultural functions were concentrated in the northern part of the city centre, and offices and apartments were constructed on underutilised locations (Enschede-Stad, 2014).

TABLE 10.1

Summary of Qualities of the Living Environment

Qualities of the Living Environment	Definitions
Physical qualities	*Green areas*: Safe green spaces that are accessible.
	Provision of basic services: Basic services such as food, water, electricity, medical care and sanitation are provided for the children.
	Variety of activity settings: There is a variety of places for children, including places where they can meet friends, talk or play informal games.
	Freedom of movement: Children feel that they can count on adult protection and range safely within their local area.
	Peer gathering places: There are safe and accessible places where children can meet.
	Heavy traffic: Streets and other public places taken over by cars.
	Rubbish/Litter: Children read trash and litter in their environment as signs of neglect for where they live.
	Geographic isolation: The local area is isolated from other communities by a mountain, river or valley.
Social qualities	*Social integration*: Children feel welcome throughout the community and interact with other age groups.
	Tradition of community self-help: Residents are building their community through mutual-aid organizations.
	Cohesive community identity: Children are aware of their community's history and take pride in its accomplishments.
	Secure tenure: Family members have legal rights over the properties they inhabit.
	Racial tension: Children experience stigmatization based on their race or ethnic origin.
	Social exclusion: Children feel unwanted and left out in their local area.
	Fear of harassment and crime: Children avoid specific areas or whole sections of the community due to fear of harassment and violence.
	Boredom: Children express high levels of boredom and alienation because places set aside for them are featureless.
	Sense of political powerlessness: Children and their families feel powerless to improve conditions.

Additional services have been integrated in the fabric of the city centre, such as an underground car and bicycle parking facility, thus giving city residents (including children) easy access to and from the centre. Just outside the car-free zone, there is a hospital, a hotel and a number of small-scale commercial enterprises. The centre itself offers a variety of facilities, among them modern shopping complexes, restaurants, bars, cannabis shops, theatres and a casino. It hosts many activities, including an open market and recreational activities such as festivals and live concerts, making it an ideal space for families to spend their free time. While there are green spaces accessible near the city centre area, the centre itself does not offer any natural green areas, although there are some spaces with greenery and water fountains.

10.7 METHODS

Our study was conducted in the city centre of Enschede, the Netherlands, in close collaboration with its international school (which is located outside the city centre). With the direct cooperation of the school's principal and geography teacher, our study was incorporated into the geography/humanity sessions of the educational program. The study was conducted between September and December 2012 and involved 28 children (19 boys and 9 girls; ages 10–17 years).

Most of the children resided in middle-class neighbourhoods and were from a variety of ethnic backgrounds. Nearly all children had been living in Enschede for a number of years and were well acquainted with the city-centre area.

In line with Hill (2005), ethical considerations were carefully incorporated in the study. First, we obtained informed consent from the children's legal guardians and from the children themselves. Second, contact sessions were organised in an open, non-formal learning space that allowed free arrangement of seating, to ensure very little power distance between the children, the teachers and the researchers involved (us). Third, we made it clear that children could opt out of any session that was of no interest to them. Fourth, we designed the research process in such a way that the one-on-one interviews occurred later on in the research process, to enable the children to feel comfortable communicating with us. Finally, we communicated our preliminary findings and results to the children, parents, teachers and school officials.

10.7.1 Qualitative GIS, Mixed-Method Approach

To measure the children's perception of socio–physical qualities, we developed a qualitative approach (qGIS) that combines conventional methods (quantitative) of GIS with qualitative methods (Cope and Elwood, 2009). As Figure 10.2 shows, this mixed-method approach enabled a connection to be formed between macro-scale urban phenomenon and the micro-scale of perceptions of the individual child. This approach made it possible to capture children's perceptions associated with different locations.

Dennis (2006) suggests that youth participation using a qualitative GIS approach holds much promise, but given the considerable variety of tools and methods available, it is important to select those that are effective in capturing children's knowledge about their local environment. The different methods used in our study for data collection and analysis (see Figure 10.2) are discussed in the following sections.

10.7.2 Data Collection

Different data collection methods were used, including participatory mapping, focus group discussions, guided tours and interviews, of which photo-voice recordings were made. First, a participatory mapping exercise was conducted in a 60-minute session with small groups of 4–5 children.
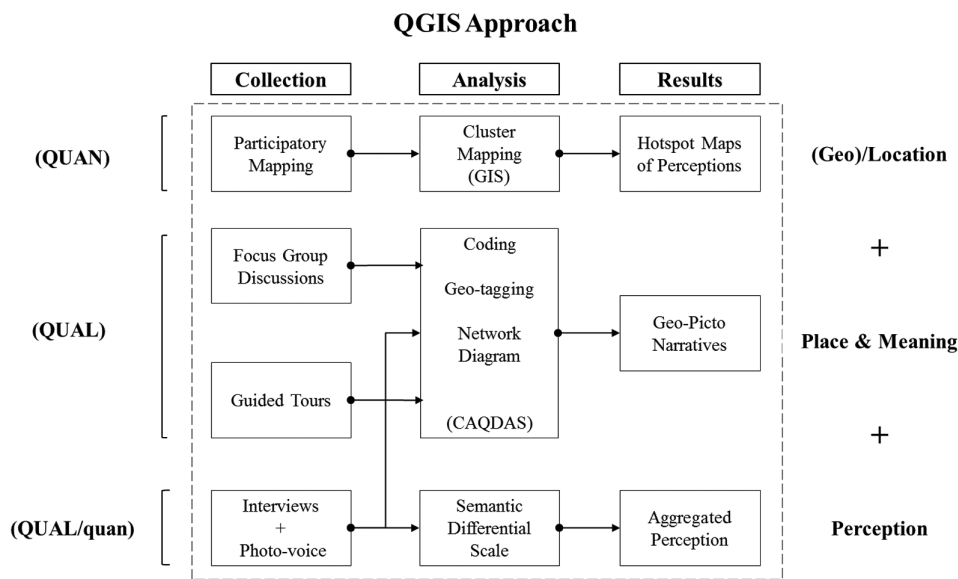
QGIS Approach

Collection	Analysis	Results	
(QUAN)	Participatory Mapping → Cluster Mapping (GIS) → Hotspot Maps of Perceptions		(Geo)/Location

FIGURE 10.2 Mixed-method, qGIS approach. (Source: Alarasi et al. (2016). Copyright 2016 by Taylor & Francis. Reprinted with permission.)

The objective of the exercise was for each child to identify particular locations in the city centre that he or she liked or disliked. Google Earth® images of Enschede's city centre of were printed on A3 paper, labelled with street names and main features and overlaid with transparent sheets. The children used their school's computers to access Google® maps and its StreetView® function. They were given green and red circular stickers and asked to use these to geocode locations in the city centre that they liked (green) or disliked (red). The children were then asked to associate qualities with the locations identified. They were assisted when needed and supervised by us and their teacher to ensure reliable mapping.

Along the lines of Wridt (2010), at the end of the exercise all transparent sheets were superimposed to give the children immediate insight into how their collective map would look after being entered into the GIS. This also enabled them to see an overview of the locations of interest for the group as a whole.

The second data collection step involved a focus group discussion to obtain better insight into the social and physical qualities of the locations identified. Two focus group discussions were organised, one for the younger children (aged 10–12 years) and one for the older children (aged 13–17 years). This was done to allow later examination of the potential differences in perception between the two age groups. Each session lasted 60 minutes and with the consent of the children was voice- and video-recorded, to enable transcription and further analysis.

The guided tour, adapted from Cele (2006), came as a third step for obtaining a deeper insight into how the children experience the city centre and how they interact with the objects and/or people they encounter. The route was predetermined, based on the locations identified earlier in the mapping exercise. To ensure a degree of flexibility, children were allowed to deviate somewhat from the predetermined route. The children were divided into six groups of 4–5 children, with a researcher or a teacher accompanying each group. Each group was issued a hand-held GPS device to track the walking tour, a camera and a printed map. Within the different groups, each child was asked to take pictures of the positive and negative locations and situations they observed in the city centre.

The fourth and last method used to obtain data consisted of interviews, of which photo-voice recordings were also made. By that time, the children were more familiar with us, which fostered open communication. Conducting the interviews as a final step allowed the children to reflect on and add and/or remove locations on their maps. The interviews were held one-on-one and were recorded for later transcription and analysis. To round off the interview, each child showed the photographs they had taken during the guided tour and explained why he or she took them. To adequately capture the perceptions of the children, a semantic differential scale (Lewis-Beck et al., 2003) was used during the interviews.

After analysing the data collected from the children, additional, semi-structured interviews were conducted with two city planners to find out whether planning professionals see possibilities for incorporating the approaches we have developed and their outcomes into future urban-planning processes.

10.7.3 Data Preparation and Analysis

The maps produced during the participatory mapping exercise were entered into a GIS database to enable spatial analysis. Each child was assigned a unique mapping ID that was linked to personal characteristics such as age and gender. Identified city-centre locations were digitised and a database was created that included attributes such as location ID, child mapping ID and place name. The qualities associated with each mapped location were entered into a separate database accompanied by the location ID and child mapping ID to allow linking of both tables and further analysis of the spatial distribution of the identified qualities. The use of a spatial database enabled the creation of a variety of mapping outputs.

The interviews were transcribed and input in Computer-Assisted Qualitative Data Analysis (CAQDAS) software. The interviews were coded, labelled and sorted according to the themes derived from the main conceptual framework (see Figure 10.1). Google Earth® images of the study area were embedded in the CAQDAS to allow geo-tagging of the codes and linking to relevant textual statements.

The photographs were also geo-tagged and grouped into different categories based on the qualities derived from the children's narratives. These narratives were then coded together with the textual information, using the qualities of the conceptual framework (Figure 10.1) as a main guide.

BOX 10.2   Methods Applied in the Chapter

This chapter illustrates the use of a qualitative GIS approach (qGIS) for measuring children's perception of socio–physical qualities. Our approach combines a mixture of conventional GIS (quantitative) with qualitative methods that include participatory mapping, focus group discussions, guided tours and interviews supported by photo-voice recordings.

The maps resulting from the participatory mapping exercise were incorporated into a GIS database to enable spatial analysis. Each child was given a unique mapping ID linked to personal characteristics such as age and gender. Identified city-centre locations were digitised and a database was created that includes attributes such as location ID, child mapping ID and place name. The qualities associated with each mapped location were entered into a separate database accompanied by the location ID and child mapping ID to allow linking of both tables and further analysis of the spatial distribution of the identified qualities. The use of a spatial database enabled the creation of a variety of mapping outputs. The interviews were transcribed and entered into Computer Assisted Qualitative Data Analysis (CAQDAS) software. The interviews were coded, labelled and sorted according to the themes derived from

the main conceptual framework (Figure 10.1). Google Earth® images of the study area were embedded in CAQDAS software to allow the codes to be geo-tagged and linked to relevant textual statements.

Such a qualitative GIS approach can be applied in quality of life studies, participatory mapping, self-enumeration or any other study that elicits people's perceptions.

10.8 RESULTS

Our findings are presented in the three following subsections to illustrate the benefit of the mixed-method qGIS in capturing the children's perceptions. The first subsection (10.8.1) discusses the general perception of the study area and observed similarities and differences between age group and gender. The second subsection (10.8.2) introduces the spatial distribution of the perceptions captured. The third, and last, subsection (10.8.3) discusses the qualities that have emerged from the study. The contextual information collected by the children and us – together with the maps – form what we call *Geo-Picto Narratives*. These give detailed insight into locations in the city centre that were liked and disliked, and the qualities associated with them.

10.8.1 General Perceptions of Enschede's City Centre

The overall perception of the city centre of Enschede was positive (Figure 10.3). The children described it as a safe place where they can enjoy many activities and hang out with their friends and family.

In the instance of the pairs 'Quiet–Noisy' and 'Crowded–Uncrowded', most of the children associated these qualities with a temporal dimension. This is because an open market takes place on the
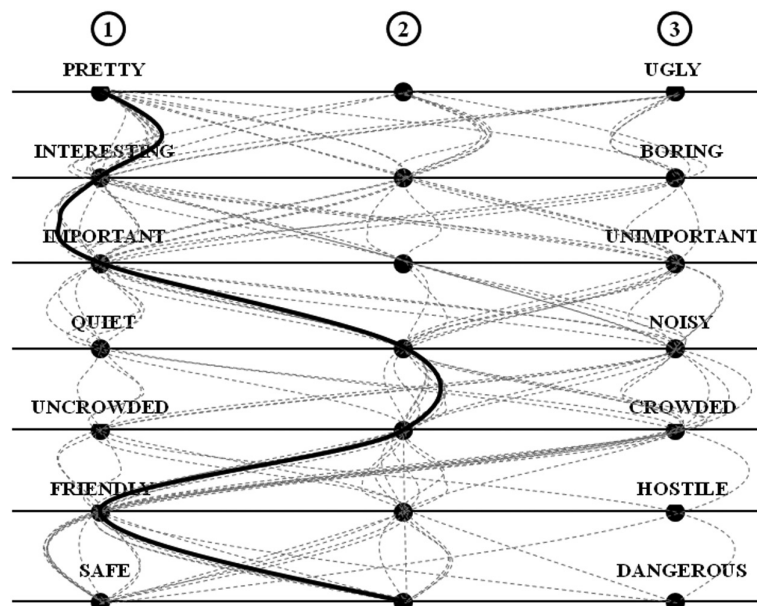

FIGURE 10.3 General children's perception of the city centre. Semantic differential, frequency of response (*N* = 28). (Source: Alarasi et al. (2016). Copyright 2016 by Taylor & Francis. Reprinted with permission.)

square twice a week and attracts many people. Additionally, for the pair 'Safe–Dangerous', most of the children were very clear in identifying areas where they did not feel safe. In some instances, children also associated this feeling with time.

> After 6:00 pm it is dangerous. Before 6:00 pm in winter it is also dangerous, but in summer it is always ok, because if you have light it is ok.

> **(Boy, 12 years)**

When looking at variations based on gender, overall the evaluations of boys and girls were both quite similar. The most apparent differences appeared in the qualities 'pretty' and 'friendly'. In both instances, boys scored more positively than girls did. Girls perceived the city centre to be less friendly as they reported feeling uncomfortable when walking through some areas because of unwanted attention there.

In the case of differences between age groups, the older children scored slightly higher on all qualities except for 'Interesting'. This higher score could be expected as older children are better able to negotiate the different spaces and know better what spaces to avoid. For the quality 'quiet', the difference is larger as the younger children appear to be more sensitive to noise, especially on market days and during festivals that take place in the open square. The younger children, however, had higher scores for the quality 'Interesting' as many of them enjoyed the city centre, in particular video-game shops, candy stores, ice cream shops and fast food restaurants.

10.8.2 Spatial Perceptions

The spatial representation of perceptions made it possible to identify positive and negative areas and the convergence or divergence of perceptions between the children. Altogether, the children recorded 235 observations, distributed over 75 locations, in the city-centre area (Figure 10.4). These locations were categorised as being positive, negative or mixed (both positive and negative).

As Figure 10.4 shows, the highest rated positive clusters include locations such as open squares, consumer electronics stores, restaurants and department stores. This is a clear indication that the city centre provides consumer services that children use and appreciate. As pointed out by Chin (1993) and Karsten (2002), these locations are spaces where children can not only socialise with their peers but also behave and feel as if they are being treated as adults. Some locations were more popular than others because of positive physical qualities (e.g. open plazas with attractive physical features, historical buildings, modern buildings and locations offering variety of activities) and/or positive social qualities (e.g. absence of social threat).

The negative clusters shown in Figure 10.4 include a back street with several 'coffee shops' selling cannabis, the dentist, the hospital, the casino and the bus station. The prime reasons given for perceiving a location negatively were 'Dangerous' and 'Dirty'. 'Dangerous' refers to various forms of perceived threat, such as fear of harassment and crime and heavy traffic. 'Dirty' was associated with features such as litter, 'bad graffiti' and the presence of animals (dogs and birds). Figure 10.4 also shows locations where the children have mixed – both positive and negative – perceptions. These relate in part to negative physical qualities and in part to negative social qualities, depending on the experience of the individual child. For example, although the main square was generally perceived positively, some children perceived it negatively after witnessing a robbery there. The categorization of three types of space (positive, negative, mixed) is in line with the physical–social qualities map originally developed by Chawla (2002), as illustrated in Figure 10.1. Cluster locations that are perceived as fully positive or fully negative can easily be incorporated in this framework, but cluster locations for which perceptions are *mixed* cannot. Nevertheless, the children unanimously agreed on what makes a quality positive or negative. Indeed, several of the qualities included in Chawla's original framework also appeared in our map (Figure 10.5), along with several
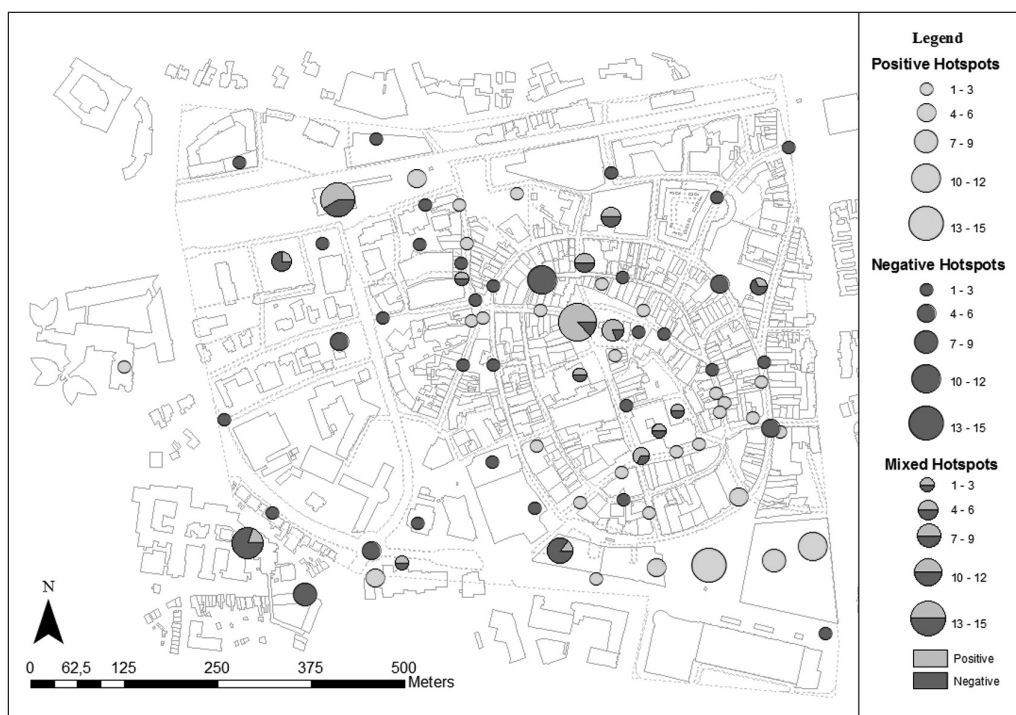
FIGURE 10.4 Spatial perceptions of the city centre based on participants' input. Source: Alarasi et al. (2016). Copyright 2016 by Taylor & Francis. Reprinted with permission.
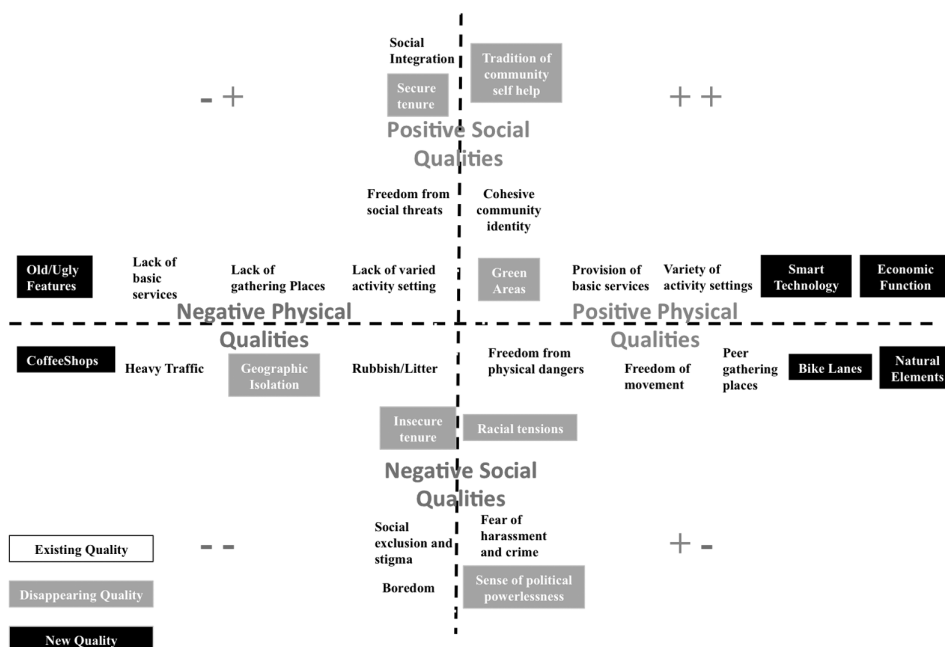

FIGURE 10.5 Emergent qualities based on the registered perceptions of participating children (10–17 years). (Source: Alarasi et al. (2016). Copyright 2016 by Taylor & Francis. Reprinted with permission.)

new qualities that emerged because of the specific context of the Enschede's city centre. Section 10.8 provides further insight into this.

10.8.3 Perception, Place and Meaning

Textual analysis of the interviews made it possible to adjust Chawla's original framework presented in Figure 10.1. Several new social and physical qualities became apparent from the analysis, while other qualities that had been observed in previous studies did not emerge from the socio–physical context of this study (see Figure 10.5). This demonstrates in particular that the identified qualities are sensitive to the specific context of the city centre and do not automatically apply to the city of Enschede as a whole.

New qualities that emerged from the textural analysis of the children's interviews are:

- *Natural elements*: A quality similar to 'green areas' but adapted to include other natural features, including water, flowers, sunlight and shade. In their maps, children stated the presence of natural elements as a primary reason for judging those locations positively. In fact, adding more trees was one of the most common improvements mentioned by children when asked what they would like to change in the city centre. The importance of natural elements was also observed during the guided tour, when the children spent a considerable amount of time exploring the various natural elements. Figure 10.6 gives more insight into the perceptions of the children on this quality.
- *Cycle lanes*: The children rated this quality positively, especially when they compared the city centre of Enschede to the cities they lived in before. This quality gives children more freedom of movement as the safety of cycle lanes makes them less dependent on adults to drive them to their various destinations. More than half of the children participating in the study cycled to and from school daily.
- *Smart technologies*: The children explicitly acknowledge technology as a positive quality. For younger boys, smart technologies are associated with playing video and internet games. This was the main reason why a consumer electronics store scored very positively in their maps. The older group of children looked upon smart technologies as a solution for some of the problematic areas they pointed out on their maps.

  > I do not like the bus station: there are too many buses and this is bad for the environment – too much CO_2. They should try to look into electric buses; its 2012 after all!
  >
  > **(Boy, 14)**

  Additionally, most of the children very positively rated locations that offer free Wi-Fi facilities.
- *Economic functions*: This quality frequently occurs in positively mapped locations. It mainly refers to (fast food) restaurants and shops (sweets, video games, consumer electronics). Many of the children pass by the city centre daily, spending a considerable amount of time there. The city centre is therefore not only a place to socialise but also one where they can spend their money, creating a culture of child consumption. This finding is similar to that obtained in Amsterdam by Karsten (2002) and is especially relevant considering that retail and consumption functions played a key role in the redevelopment Enschede's city centre.
- *Coffee shops*: A physical quality related to the specific context of the Netherlands, where cannabis is legally sold. The presence of coffee shops is the one quality that all children evaluated negatively. In fact, the street in which coffee shops were concentrated was the most negative location identified, the most frequently photographed item and a top priority for the children when asked about improvements to the city centre. When children described this quality, they tended to use the words: ugly, dirty and dangerous. Some of the children (especially the younger age group) also perceived the people in these areas as
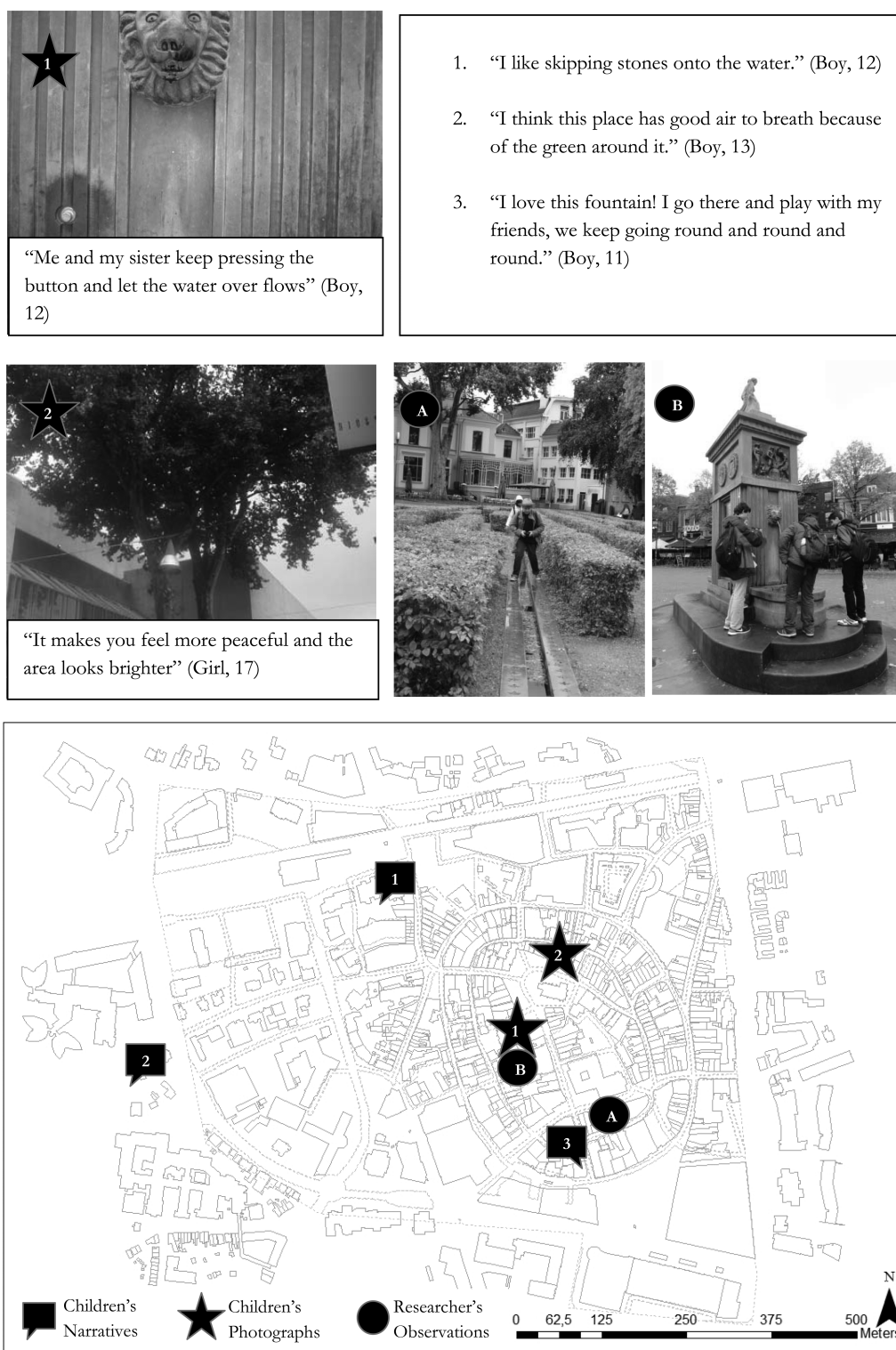
"Me and my sister keep pressing the button and let the water over flows" (Boy, 12)

1. "I like skipping stones onto the water." (Boy, 12)

2. "I think this place has good air to breath because of the green around it." (Boy, 13)

3. "I love this fountain! I go there and play with my friends, we keep going round and round and round." (Boy, 11)

"It makes you feel more peaceful and the area looks brighter" (Girl, 17)

FIGURE 10.6 Natural elements – *Geo-Picto Narrative*. (Source: Alarasi et al. (2016). Copyright 2016 by Taylor & Francis. Reprinted with permission.)
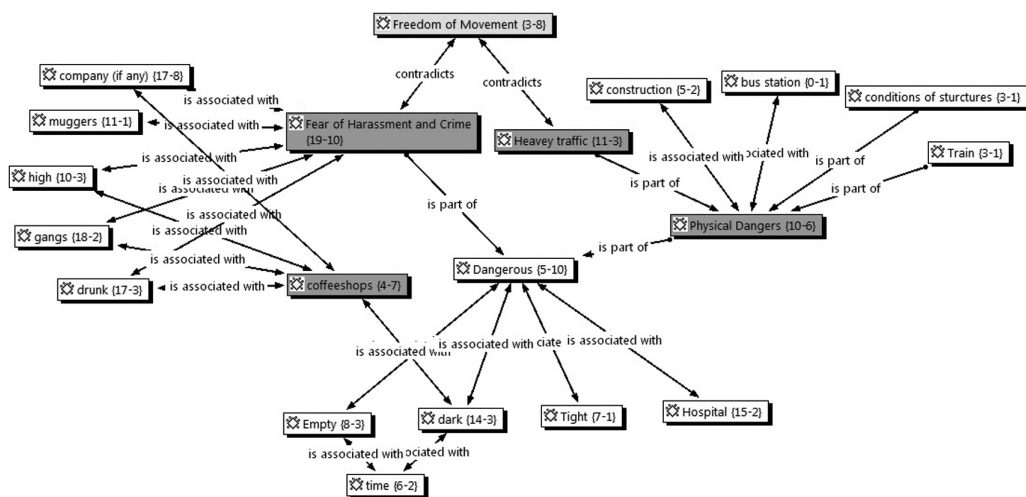
FIGURE 10.7 Relationship between the quality 'coffee shops' and the other physical and social qualities – network diagram. Source: Alarasi et al. (2016). Copyright 2016 by Taylor & Francis. Reprinted with permission.

dangerous. The network diagram in Figure 10.7 shows how this specific quality relates to other physical and social qualities, including fear of harassment and crime, physical danger and freedom of movement.

- *Old/Ugly features:* Children appear to be very sensitive to old features that are not well maintained or features that are 'dull' or 'grey'. Regardless of their age or gender, the children were very sensitive to their surroundings, as they quickly noticed features such as litter, dirty walls, bad smells, poorly maintained buildings and crowded spaces. This is also reported in previous research (Woolley et al., 1999), suggesting that children can observe their environment in considerable detail. Ward (1978) attributes this to the smaller height of children. On the other hand, children reported positively on artistic features. Many pictures were taken of colourful street art, details of buildings and the various statues in the city-centre area.

10.9 REFLECTION ON THE QGIS APPROACH AND RESULTS

This case study illustrates the added value of adopting qualitative GIS when studying children in the context of their neighbourhoods as an essential approach for understanding their experience of place and developing child-centred policies (Christensen and James, 2008). Although a number of studies on children's understanding of maps have been done since the 1970s (see discussion on Matthews, Moore, Spencer and Hart as cited in Holloway and Valentine, 2000, and Aitken, 2005), the conceptualization of these studies were focused on cognition, wayfinding and spatial knowledge acquisition (Aitken, 2005). However, it is clear that adopting a qualitative GIS methodology revolves around visualizations of invisible and unquantifiable experiences and subjects in an effort to position them on a map, which in doing so effectively lends them a sense of legitimacy and authority (Cope and Elwood, 2009).

In fact, the conceptualizing of GIS as a technology, methodology and situated (location and participant dependent) social practice makes the adoption of qualitative GIS for research on children's experiences in their neighbourhood an immediate response to the new sociology of childhood's call for using ethnographic research methodologies that allow children a 'more direct voice and participation in the production of sociological data than is usually possible through experimental or survey styles of research' (Prout, 2005, p. 60). In our specific study, this occurred through incorporating

qualitative data and expanding the representational capacities of GIS. And despite inclinations to view similar GIS studies that incorporate these elements as simply adding on qualitative data, it is important to stress the hybrid epistemology and the embedded intersubjectivity, as well as the active reflexivity, of the agent mapper in these studies (Kwan, 2002).

Some may argue that the 'simultaneous' use of multiple research methods could lead to repetitive information. However, the incorporation of multiple forms of data in this research results in a greater understanding of the perceptions and experiences of children. This was also pointed out by Cele (2006) and Jung and Elwood (2010). By overlaying geographical information and exploring relations using querying functions of the textual analysis, we were able to obtain valuable insights into the children's perceptions. This also proved to be insightful for the city planners:

> These methods are very good because by walking around the children can point out exactly what they like and dislike. And from their pictures we can see their point of view […] and the combination between the maps and the picture is really good for us.

Among the results shared with the city planners, the maps ranked highest in importance, in particular when used in combination with the supporting contextual information:

> It is important to know what are the positive areas and why, and also [to know] the negative areas and why. Then you can lay them next to each other. Then you can find the relationships, because when we make our plans we can see and understand what we can do to turn a negative location into a positive one. That is why it is important that we know exactly why it is negative. That is very important for policy-makers. Why! Why! Why! [an area is perceived as negative] Because only then can we see if we can do something about it.

More importantly, the two planners agreed on the importance of including insights of children in urban planning processes. This is important not only for improving current situations but also when considering future plans for a city. Having said that, the planners acknowledged that children are usually forgotten in urban planning processes, as planners generally rely on the viewpoints of adults alone:

> We speak a lot with the parents of children. In the Netherlands, when we plan for a playground, for example, the parents will often make their opinion known, while the children are not in the picture.

The planners also indicated that one of the reasons a policy-maker is more interested in a parent's point of view is because parents have voting power. When asked how this obstacle could be overcome, they pointed out to the importance of studies such as ours. In fact, the collaboration with the international school for this research was seen as 'the power' of the whole study, since a systematic approach can be developed so that the school can schedule this kind of activity into their yearly programme, thus making future collaboration more attainable. At the same time, it must be recognised that conducting participatory sessions in a regular classroom environment may hinder true participation, as children tend to share opinions differently if they perceive something as an assignment rather than a free activity.

Currently, processes of collaboration between municipalities and schools are being introduced in different parts of Australia, New Zealand and the UK (Gleeson and Sipe, 2006); this is also one of the recommendations made by Chawla (2002). Once such collaboration is established, it will become easier, as one of the planners stressed, to replicate and roll out approaches such as this to more schools. This will not only aid in institutionalizing children's participation in existing planning practice but will also help to sensitise – perhaps even 'educate' – planners to more systematically incorporate the perspectives of children in local planning processes. Equally important is that the visual media used in this type of research can be used as a bridge to engage a variety of built-environment professionals. Not only planners, but also architects, (urban) designers and artists could become involved at different stages.

The methodological approach presented here can be applied in different types of living environments, although it might need to be adapted to accommodate the limitations and characteristics of different settings. For example, research done with children from low-income communities who have less access to IT technology may require tools other than Google® maps and, perhaps, even photography. One solution would be to rely on printed maps and drawings made by the children. In cases where the children have difficulties in reading a map, a walking tour in which children take the lead in guiding the researcher to points of interest could also serve as a substitute.

10.10   CONCLUSION

Our study focused on involving children in the town planning processes by capturing their perceptions of their local living environment, in particular those of the city centre of Enschede. Given the specific background of the children we involved in this research, the results reported do not necessarily reflect the general perception of all children on the Enschede's city centre. Based on the framework developed by Chawla (2002), a mixed-method qualitative GIS (qGIS) approach was designed to gain insight into how children perceive the social and physical qualities of the city centre. Finally, the study also illustrates the benefit of a participatory, mixed-method approach that, on the one hand, provides children a platform for expressing their views and, on the other hand, results in a better understanding of these views and perceptions.

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