QUALITY OF SOCIABLE STREET: EXPLORING THE RELATIONSHIP BETWEEN THE STREET ENVIRONMENT AND SOCIABILITY
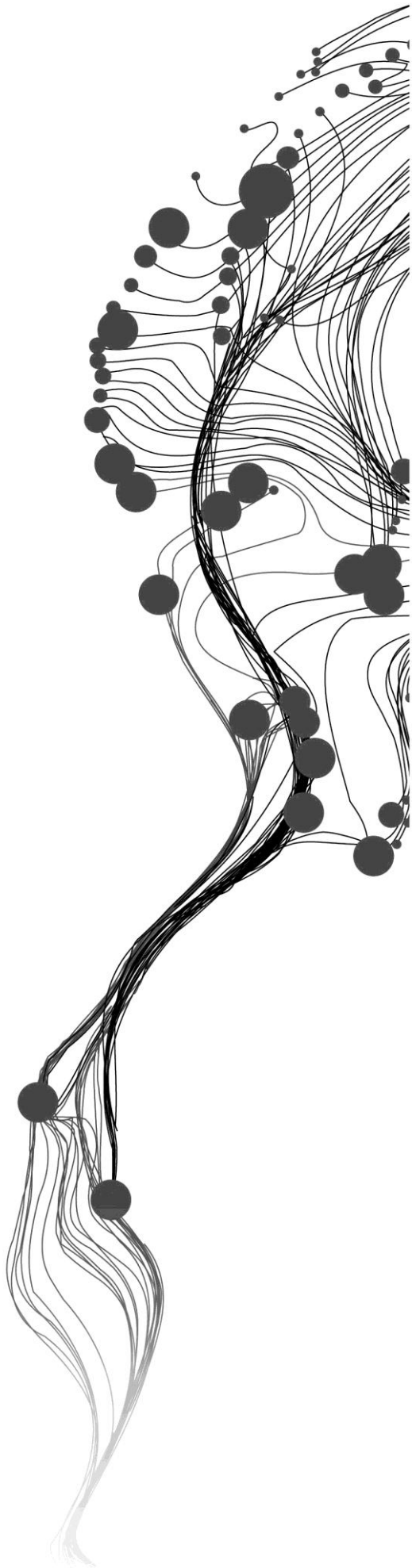
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QUALITY OF SOCIABLE STREET: UNDERSTANDING THE RELATIONSHIP BETWEEN STREET ENVIRONMENT AND SOCIABILITY

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ABSTRACT

The focus of the research is the understanding of the relation between sociability and street environment through comparison of objective reality of the street environment influence and human perception, so that a broad picture could be obtained which relates to the quality of a sociable street. An important issue for understanding is: what makes streets as sociable places; what the streets as public spaces offer to people; what are characteristics of the street environment to attract people and enable social interaction. Perception of people is an important factor which influences sociability through creating a feeling of "place attachment".

Mixed method approach is used in the research, and it means analyzing sociability and street environment in the city centre of Novi Sad, through the objective condition and subjective perception. Results of the objective condition analysis through technique of observation show a variation in people behaviour in dependence of their age. Results of the analysis of the subjective perception that were taken after processing the data from the walking interviews show that perception of people is generally positive about sociability and quality of street environment.

Comparison of the analysis show that most of the human behaviour phenomena depends on the environment in accordance to their perception. Perception is more unbiased when depending on what is more crucial for their stay in a specific place. In cases of discrepancies of the objective condition and the subjective perception, the connection between sociability and the street surrounding can be described through "place attachment". Perception of people, besides factors of environment, is also affected by factors of experience, memories, length of habitation, personal characteristics which were the aspects that were used in the research.

Finally, the relation between sociability and street environment can not only be observed through objective condition. This research proves that any street sociability analysis needs to include both objective condition and the perception of people, and also their mutual relation. It is shown that subjective perception can explain certain phenomena related to sociability of the streets. According to that, certain recommendations and eventual solutions can be offered, in order to improve sociability of any urban public space.

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1.   INTRODUCTION

The introduction chapter has six sections. The first section is background and justification of the research. The case study background and justification is presented in section two. In the third section the research problem is presented. Research aims and objectives are presented in section four. In the fifth section the specific objectives and questions are presented. The conceptual framework is presented in section six.

1.1.   Background and justification

A successful city is one that has a high-quality public spaces that meet the needs of different people. According to PPS (2014) an every successful public place is **accessible**; people are engaged in **activities** there; it is of high importance that public places are **comfortable**; and "**sociable place**: one where people meet each other and take people when they come to visit". Therefore, **sociability** is one of the four key qualities of public places (PPS, 2014). Dictionary meanings of "sociability" refer to the quality or state of being sociable, while the term "sociable" is described as an adjective with the following meanings: Willing to talk and engage in activities with other people; friendly; Place (or occasion or activity) characterized by friendliness or social interaction (Oxford's Dictionary, 2013). Based on these definitions many kinds of places may qualify as sociable. However, for this research sociability is strictly associated with streets as public spaces.

Urban design literature covers several relevant studies which aim to determine what constitutes a sociable public places, they are defined as places where people participate and interact with each other (Jacobs, 1961; Whyte, 1980; Carr, Francis, Rivlin and Stone, 1992; Carmona, Tiesdell, Carmona and Heath, 2003; Childs, 2004; Crowhurst-Lennard and Lennard, 1995; Gehl, 2011, 2013; among others). Within the existing literature, only a few of these studies define and deal with the sociability of a street (e.g. Appleyard, 1981; Vernez-Moudon, 1987; Carr et al., 1992; Jacobs, 1993; Yeang, 2000; Tasker-Brown, 2001; Montero-Avila, Miller and Jacobson, 2001; Sedaghatnia, 2012; Mehta, 2014). For the purpose of this study, <u>a sociable street is defined as a social space with the presence of a number of people in groups (diverse in age and gender) involved in a variety of common activities, particularly those activities that foster social interaction between people.</u> The idea of sociable streets, as defined this study, is not new. The quality of sociable streets is reflected in the fact that they are able to provide a space for social interaction (Jacobs, 1993). One of the main functions of the street is an opportunity to socialize (Gehl, 2011), and "place where we come together" (Whyte, 1980). According to Mehta (2006), streets facilitate social contact, social cohesion and social awareness. Stated differently, the streets are public places that may best enable achievement of sociability (Jacobs, 1993).

Karimnia (2012, p:8) says that despite "contemporary urban city planning principles and some ideas of 20th century has the lack of sociability in public spaces". Although much effort has been invested in the design of certain public places, sometimes they end up dead and desolate in real life (Karimnia, 2012). Also, while some public places are full of people, the diversity of people in terms of age, gender, class, and ethnicity is very small. Usually, too, there is a lack of elderly people, children and women. Certain streets are very busy and crowded, but they are dominated by a large number of individuals who

are not partaking in social interaction with other people (Whyte, 1980). Thus, it is possible to conclude that certain streets have problems with sociability when it comes to the quality of public places.

To understand why some urban environments have a problem with a lack of sociability, it is necessary to understand the spatial quality of that place; and how it influences people's interactions (Karimnia, 2012). Despite such suggestions, Mehta (2014) states that only few studies have addressed the relationships between social behaviour and the environmental quality of the street. At the same time, he shows that sociability is not only a result of the spatial quality of the environment, but is achieved by the relationships between the physical environment, the land uses, their management, and the places to which people assign special meanings (Mehta, 2014). Carmona (2003, p:87) points out the fact that "we affect the environment and are affected by it…" and stresses the importance of people's perception of the space that surrounds us. Karimnia (2012) emphasizes the significance of human perception of the environment through a sense of attachment to an environment as an essential element to improve sociability. He states that a sense of attachment to certain place ensure that people feel comfortable and proud of that place and "these results in dynamic interaction and social communication between people" (Karimnia, 2012, p:27). According to Carmona (2003, p:106), "…perception involves the gathering, organizing and making sense of information about the environment" and thus, the relationship between people and environment is a continuous two-way process, in which people create and modify spaces while at the same time being influenced by them in various way (Carmona et al., 2003). Hence, the sociability of certain place depends on the quality of the environment and the perception of people towards that environment. To determine the quality of sociable place, it is necessary to simultaneously investigate the characteristics of the environment and human perception about the same.

Through a research of the history of environmental design, Rapoport (1990) found that only several studies dealt with perceptual characteristics of urban environment, and those studies are mostly from the field of social sciences and ignore the physical environment. He also concluded that few studies deal with both, the perceptual characteristics of space and objective characteristics of space, they are usually done on a macro-scale, based on "urban form" and "geographic literature" (Rapoport, 1990). However, a significant number of these works is focused on the analysis of the macro-scale factors such as location, socioeconomics, accessibility, location, density (Cervero, 1996; Moudon, Monitor, Matlick and Program, 2001; Handy, Boarnet, Ewing, and Killingsworth, 2002; Cattell, Dines, Gesler, and Curtis, 2008; among others). However, Mehta (2006) states that certain differences exist between the streets with the same purpose in the same neighbourhood, even in cases of similar macro-scale factors. According to Mehta (2007), these variations are a result of micro-scale characteristics of the physical environment and land use. On the contrary, little attention is given to street level environment by urban planners, policy makers and designers (Gallimore, Brown and Werner, 2011). Hence, to understand pedestrian's behaviour and street level experience, micro level determinants are more clear-cut than macro level determinants (Gallimore et al., 2011). Most studies dealing with micro-scale quality of streets, including sociability, have focused predominantly on squares (Crowhurst-Lennard and Lennard, 1995; Whyte, 1980; Karimnia, 2012, among others). Even among those rarer studies dealing with the streets, most research has focused on the residential streets (Appleyard, 1981; Gehl, 2011; among others). Commercial streets in city centres are usually considered to be high-quality public places because they are the focal point of the city. However, this does not necessarily mean that the quality of the main city streets is adequate for sociability.

Therefore, how the different states of street environment affect people's behaviour and need for contact with one another is an important issue to be examined. The condition of the street environment and perceptions of users regarding street environment needs to be assessed as well as what influence the level of sociability.

1.2.　Case study - Background and justification

The case study of this research is conducted in the city of Novi Sad (Serbia). In fact, the city needs more research into streets as public places, because there is almost no empirical research of any public places in Novi Sad (Pusic, 2013). Even the research that deals with social characteristics of space in Novi Sad is usually performed on the macro-scale level, mainly taking into account the socioeconomic characteristics, urban form etc. (Kostres, Maras and Atanackovic, 2007; Kostres and Reba, 2010; Pusic, 2013). These studies are mainly concerned with the use of different residential parts of the city in relation to socio-economic status of citizens. Considering the fact that the city centre is the main public place of every city, then exploring the commercial streets in this part of Novi Sad makes a good starting point for investigation of public places in general. Therefore, the purpose of studying the case in the city of Novi Sad is to evaluate and investigate whether commercial streets in the city centre can be characterized as a sociable street; and what are the advantages and disadvantages of street environments that encourage/discourage sociability.

1.3.　Research Problem

Problems related to sociability affect the overall quality of the public space. If a public place is empty, and people have no desire to spend time, then the place has a problem with the quality of the environment. Public places have physical and functional characteristics, which positively or negatively influence social interaction (Montero-Avila, Miller and Jacobson, 2001). These characteristics can support or not support the activities in public spaces and may influence their capacity to promote social interaction (Montero-Avila et al., 2001). Therefore, an important issue for understanding what makes streets sociable places is what the streets as public space offer to people; what are characteristics of streets to attract people and enable social interaction. Knowing what other authors have found or have not found related to sociability in public spaces can provide an understanding of what should be considered in this research. Scholars have emphasized the importance of people's perception in creating a sense of attachment to a certain place, which is an important factor that influences sociability. The perception of street users about the street environment is of equal importance to be understood.

Only a few studies addressed simultaneously the assessment of the street environment and people's perception of that environment. Even among those studies, most are usually done at the macro-scale, or they have predominantly focused on squares (Montero-Avila et al., 2001; Childs, 2004; Karimnia, 2012; among others). There is limited empirical research on the quality of sociable streets on the micro-scale. Empirical cases can provide disaggregated information on the impact of street environment on human behaviour (e.g. interaction between people). For the purpose of this study, the micro-scale characteristics are defined as those street aspects that occur at the scale of the previously determined street segment. Micro-scale street characteristics distinguish buildings, facilities, street equipment, activities etc. on the street that may be adjacent to each other on the same street segment. Even less are works that give equal importance to analysing of objective reality of the street environment (objective conditions) and human perception about street environment (subjective perception). The terms objective condition and subjective perception of an individual are borrowed from the concept of quality of urban environment (Pacione, 2003). Particularly, the quality of a sociable street which has not been researched through the assessment of the street environment taking into account the objective conditions and subjective perception towards the street environment.

The focus of this study is to examine what is the impact and importance of the quality of the street environment on sociability and to determine which street characteristics are less and which are more important for sociability and why. Via a comparison of objective condition and subjective perception it is

possible to get a broader picture of the importance of individual attributes of the street environment and the impact on the overall sociability. Therefore, this research will explore both objective condition and the subjective perception in order to analyze the importance of street environment for sociability and establish a possible relationship between the place attachment and sociability.

1.4. Research Aims and Objectives

1.4.1. Aims

The general objective of this research is to investigate the relationship between the micro-scale street environment and sociability of the streets considering both objective conditions and subjective perceptions.

1.4.2. Objectives

1. To identify the micro-scale characteristics of sociability and street environment
   a. To identify indicators of sociability and street environment
   b. To identify the factors that influence people perception on the sociability and street environment
2. To analyse the level of sociability and street environment of different streets
   c. to analyse the sociability and street environment through objective condition
   d. to analyse the sociability and street environment through personal perception
3. To understand the relationship between sociability and street environment comparing the objective condition and subjective perception
   e. to analyse and explain the variation between objective condition and subjective perception
   f. to analyse the relationship between sociability and street environment through place attachment

1.5. Specific objectives and questions

Table 1-1 Research objectives and questions

SOECIFIC OBJECTIVES	RESEARCH QUESTIONS
SPECIFIC OBJECTIVE 1	
a. to identify indicators of sociability and street environment	1. What are the objective indicators of sociability?
	2. What are the objective indicators of street environment?
b. to identify the factors that influence people perception on the sociability and street environment	1. What are the factors that influence people perception on the sociability and street environment?
SPECIFIC OBJECTIVE 2	
c. to analyse the sociability and street environment through objective condition	1. What are the levels of sociability per segment according to the objective indicators for each street? 2. What are the levels of street environment per segment according to the objective indicators for each street?
	3. Which segments of sociability coincide with segments of street environment? 4. What is the relationship between street environment and sociability based on an analysis of the objective condition?

d. to analyse the sociability and street environment through personal perception	**1.** What are the people perceptions about different aspects related to sociability?	
	2. What are the people perceptions about different aspects related to street environment?	
	3. What are the similarities and dissimilarities in the perceptions of people?	
SPECIFIC OBJECTIVE 3		
e. to analyze and explain the variation between of objective condition and subjective perception	**1.** What are similarities and dissimilarities of objective condition and subjective perception?	
	2. What is the reason for similarities and dissimilarities between objective condition and subjective perception?	
f. to analyse the relationship between sociability and street environment through 'place attachment'	**1.** Which aspects are related to different level and form of sociability?	

1.6.   Conceptual framework

Figure 1-1 presents the conceptual framework for the study based on the theoretical framework of the research. The focus of this study is to examine what is the impact and importance of the quality of the street environment on sociability and to determine which street characteristics are less and which are more important for sociability and why. Since the sociability depends on the quality of the street environment, it is very important to determine the relationship between the sociability and street environment. So, two main concepts of the conceptual framework are 'sociability' and 'street environment'.

However, for sociability the quality of the street environment is not the only important factor, but also the subjective perception of people towards the same. So, this research also emphasizes the importance of subjective perception in creating the 'place attachment' to a certain place, which is an important factor that influences sociability. Characteristics of the street environment involve subjective perception of people to 'experience' street characteristics, and result of experience is a 'memorable image' as 'place attachment' to the place. 'Place attachment' is an additional concept used for the explanation of the relationship between street environment and sociability.

Therefore, it is important to examine the relationship between the sociability and the street environment in two ways. One that will explain the objective condition of sociability in relation to the quality of the street environment and one that will include subjective perception of people to further understanding of this relationship. Finally, the research investigates the relationship between sociability and street environment through objective condition and subjective perception. These two ways of examination are adequate to determine how sociability really depends on the characteristics of street environment and what the impact of subjective perception is.

The theoretical framework that deals with conceptualization of the terminologies along with main themes of the research is derived from several disciplines. These are theories related to sociable public space and theories related to place and place attachment. These theories have overlapping concepts and are described in the next chapter.
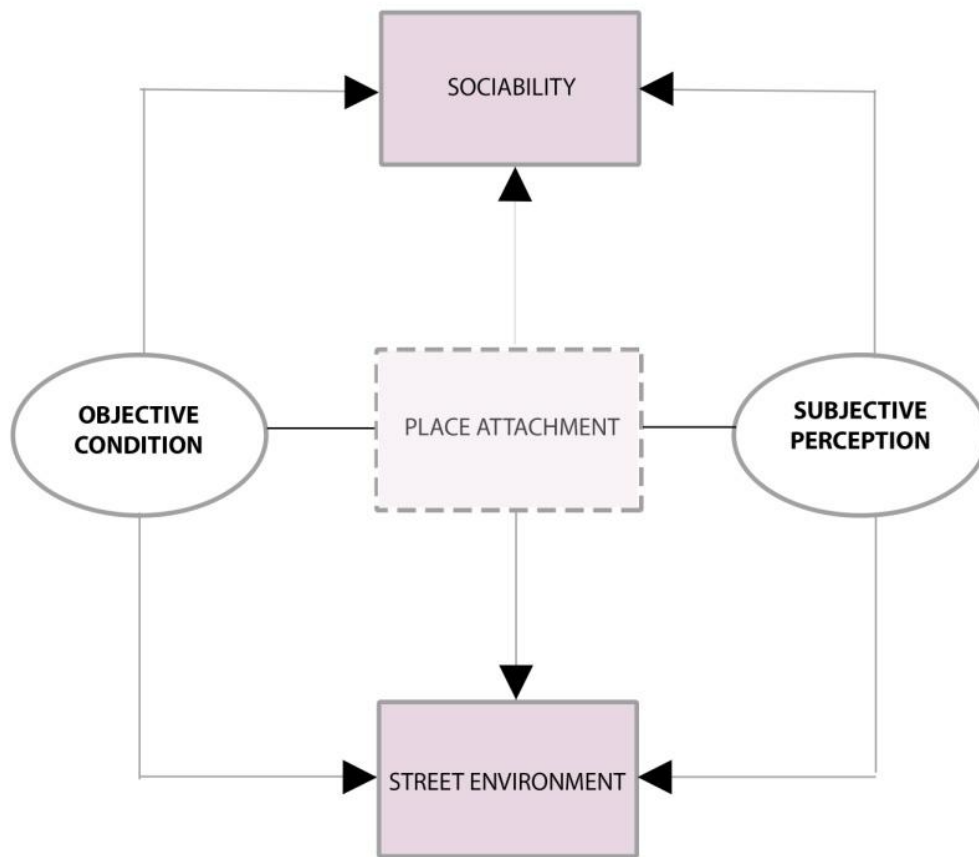
Figure 1-1 Conceptual framework of the research

2. CONCEPTUALIZING SOCIABILITY AND QUALITY OF STREET ENVIRONMENT

2.1. Sociability in public spaces/streets

The terms 'sociability' and 'sociable places' have been already explained in the previous chapter. This research focuses on sociability in public places, specifically streets. PPS (2014) has developed the Place Diagram as a tool for the assessment of places (Figure 2-1). In the Place Diagram, 'sociability' is one of the criteria for assessing the quality of the place. Here, there are both qualitative (intuitive) and quantitative aspects that can be measured by statistics (PPS, 2014). The Place Diagram is the primary base from which the concept of 'sociability' has emerged for this research.
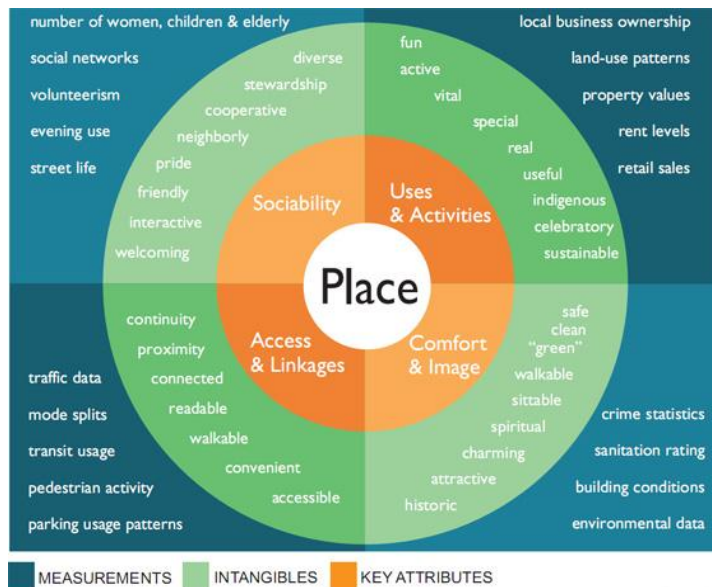
Figure 2-1 Place Diagram, Source: PPS (2014)

A large number of indicators of sociability that are used in this study have been derived from the qualitative and quantitative aspects of the Place Diagram. Intangibles of sociability are: pride, friendliness, interaction, stewardship, cooperation, neighbourliness, welcoming etc. Measurements of sociability are number of women, children and elderly, social networks, volunteerism, evening use, street life etc. Several questions to consider on sociability have been used to facilitate the formation of indicators (Whyte, 1980, Gehl, 2011; PPS, 2014; among others):

- Are people alone on the street or in a groups?
- Are there more women than men?
- Is there a mix of different age?
- Do people talk to each other and smile?
- Is there a variety of activities on the street? etc.

Sociable place includes high proportion people in groups, higher proportion of women than man, different ages, varied activities etc. (PPS, 2014).

2.1.1. High proportion of people in groups

Whyte (1980) found that the proportion of people in groups is associated with the success of public space. Here the best-used public places have about 45% of people in groups while the least-used

public spaces have about 32% in groups. He also states that if people are going to public places in groups of two or three, it is because they have decided to do so in advance (Whyte, 1980). Therefore, people in the groups are mostly proof that they want to interact among themselves, and a proof of a friendly and interactive place. The presence of people in groups can be an index of selectivity (PPS, 2014). Groups in public place are "composed of individuals who have no other desire than to create wholly pure interaction with others" (Wolff, 2005).

2.1.2. Higher proportion of women than men

The most-used public spaces have higher proportion of women than men (Whyte, 1980). Whyte (1980) has researched the gender difference in public places and found that males usually take the front-row seats of double-sided benches parallel to a street, while women prefer places that are bit secluded. Women tend to be more discriminating towards the spaces they use (PPS, 2014). Reasons for discrimination range from types of seating available in a public place to perceptions about whether a place is safe enough (PPS, 2014). Hence, the design of the urban environment can reduce the choices available to women (Carmona et al., 2003). Whyte (1980) also found that the most noticeable of men are groups of men who gather together and overtly observe and comment on women as they pass ('girl watchers').

2.1.3. Different ages

A mix of ages generally reflects the community (PPS, 2014). A mixture of ages primarily means the presence of children and elderly. In a proper neighbourhood and child-friendly place, children can be seen playing on the streets and this means that they have more opportunity for mobility and freedom and a greater ability to independently interact with others (Thomas, Jones, Efroymson, George and Choudhary, 2012). A place good for children is a place good for people of all ages (Thomas et al., 2012). Interpreting the work of Jane Jacobs, Wendt (2009) has concluded that the use of sidewalks is to assimilate children. Sidewalks should be also certain kind of playground for children, since they are much safer and much more interesting places than uncontrolled playgrounds in parks (Jacobs, 1961). The presence of children and the elderly is an indicator of a safe place. At the same time, the presence of people of a range of ages also means a place has different constituencies who use it at different times of day (PPS, 2014). For example, pre-school age children can use a public place when others are working, as can seniors and retirees (PPS, 2014). Elderly feel more comfortable and are more likely to go to these places, which they visit as part of their regular routines (Lennard and Riley, 2010). However, the qualitative public life draws all but the most infirm residents out of their homes, promoting social interaction and network ties (Lang, Lennard and Riley, 2010). The array of stores, banks and other commercial centres along the streets can provide seniors with safe, air-conditioned places where they can get relief from the heat or cold (Lennard and Riley, 2010). The design of the urban environment can be regarded in terms of the ways in which it reduces the choices available to certain social groups such as those with disabilities and the elderly (Carmona et al., 2003). Various physical barriers can inhibit their use of the public space (Carmona et al., 2003).

Jacobs (1961) found that in American cities mixture of uses of buildings produces a mixture of people using the public spaces at different times so that such a place is busy during the whole day. Public places that are surrounded by monotonous environments, such as office districts, are only used for a certain part of the day, creating a vacuum of usage at other parts of the day. This vacuum attracts some people who are usually not so welcome in public place (Jacobs, 1961). "Undesirable" and "deviant" users reduce both comfort and safety and influence other people to avoid places where those people are (Carr et al., 1992). Therefore, the design of public space should be such to exclude unwanted users (presence of illuminated ground-floors, shops, cameras, police etc.)(Carr et al., 1992). Finally, a sociable place offers the possibility of bringing diverse people together, where they can express and proclaim their freedom and be able to interact among themselves (Montero-Avila et al., 2001).

2.1.4.   Friendly interaction - Affection

People are social beings who receive fulfilment and pleasure through interactions and contacts with others of their species (Mehta, 2014). In a good public space, the interaction between people is manifested through smiling, kissing, embracing, talking, holding and shaking of hands (PPS, 2014). This kind of interaction, for its own sake, to give pleasure to each other, not to enhance one's status or position but to increase each other's sense of well-being is defined as sociability (Crowhurst-Lennard and Lennard, 1995). Sociability creates an ideal world in which the pleasure of the individual is closely tied up with the pleasure of the others (Wolff, 2005). Sociability includes "gossiping, bantering, storytelling, joking, flirtation, intermixed with seriousness, concern for the other and expressions of support, even love!" (Crowhurst-Lennard, 2004). The tendency to desire friendly interaction with others is defined as sociability (Rodgers, 1972).

Rodgers (1972, p:520) states that "there is an inverse relationship between the degree of sociability and preference for personal space", where personal space is "the amount of distance an individual prefers between himself and another for comfortable standing conversation" (Rodgers, 1972, p:520). Personal space is also related to the capacity of space (Whyte, 1980). Although people say that they want to avoid the crowds, Whyte (1980, p:19) found that they actually do the opposite: "What attract people most, it would appear, are other people." People involved in the conversation are not separated from the main flow of people, and most of the observed conversations are taking place right in the middle of the main pedestrian flow (Whyte, 1980). He also observed that people avoid stopping to talk in the middle of some huge open space, but they tend to stand in the mainstream, making it difficult for others to get around them (Whyte, 1980). Contacts on sidewalks may seem irrelevant upon first glance, but in sum, they are the basis for the success of public places and personal satisfaction, and that is why one of the major uses of sidewalks is to foster contacts (Jacobs, 1961).

Human interaction also means greater community support and engagement, so that people feel that they belong to a place and that others know them and care about them (Thomas et al., 2012). Mehta (2014, p:8) states: "Social interactions both active and passive are a distinct, important, and meaningful part of the experience of living". This face-to-face interaction is promoted through a high quality environment that allows different types of activities that facilitate interaction (Kelbaugh, 2007). Mehta (2006) emphasizes that interaction may occur as a result of many different activities.

2.1.5.   Varied activities - Social characteristics

Different types of activities in the area attract people and facilitate interaction between people. Popular places generally have more things to do than less successful places (PPS, 2014). PPS has evaluated that the town dock in Cold Spring, NY is one of the most successful public places, because PPS staff counted as many as 20 different activities occurring simultaneously, ranging from fishing to feeding ducks to picnicking, rowing, and swimming (PPS, 2014). Many of these activities usually do not require special amenities or tools. Different activities require different conditions, which primarily depend on the type of activity. Gehl (2011) categorized three types of human outdoor activities: 'necessary activities' that occur regardless of the physical environment, such as going to work, shopping, waiting for bus; 'optional activities' that are performed for wish and there is no force to do it (e.g. sitting and sunbathing, walking to get a breath of fresh air, standing around) and those activities can be accomplished under proper physical conditions; 'social activities', depend on the presence of other people (e.g. meeting and conversations, children's play) and are fostered by high-quality physical conditions. According to Mehta (2006) 'social activities' are those activities where two or more persons are together engaged in active or passive activities.

Streets as public spaces provide an opportunity for the combination of all activities (Karimnia, 2012). The primary role of activities is to facilitate communication and social interaction between people. Optional activities, especially eating and sitting can stimulate the senses of other people and get them to join (Whyte, 1980). Gehl (2011) found that people start talking to each other if they are relaxed and if they

are involved in a common activity. People and their activities in the certain environment are social characteristics of a place (Karimnia, 2012). Street activity cannot be designed but it can be encouraged or inhibited by certain street characteristics of street environment (Grammenos, Pogharian and Tasker-Brown, 2001).

Besides this, sociable place is the one where people feel affection and welcome, where they feel familiarity with the place and with the people and the place to which they are proud at (PPS, 2014).

2.1.6. Sociability domains and indicators

Previous literature review has enabled the identification of numerous characteristics of sociability. They involve qualitative and quantitative aspects of Place Diagram and other additional theories. Friendly interaction and activities are merged into one measurement, as the friendly interaction itself is already a form of activity. Intangibles of sociability are additional indicators that serve to describe the previous measurable indicators.

Finally, indicators of sociability are prepared on the basis of previous theoretical framework and they are presented in the following table in form of measurements and intangibles of sociability:
(Table 2-1)

Table 2-1 Objective indicators of sociability

SOCIABILITY	
Measurements	Indicators
High proportion of people in groups	Number of people in groups; Number of groups
Higher proportion of women than men	Presence of women (number of women)
Different ages	Presence of elderly (>65 years); Presence of children (<15years); Presence of people15-25 years; Presence of people 25-65 years;
Friendly interaction - Activities	People alone (negative); Empty segment (negative); Different ages in groups; Presence of active or passive activities (people are talking, children are playing etc.);
Intangibles	Pride, friendliness, interaction, stewardship, cooperation, neighbourliness, welcoming

2.2. Street environment

To enable interaction between people it is essential that the street also has certain characteristics that will enable activities that lead to interaction. Mehta (2006) emphasizes that the quality of the environment refers to the properties of an object or environment (setting) that enable it to be used for some activity. For example, the activity of eating requires a correspondingly physical condition (e.g. a suitable place to sit) (Gehl, 2011). Human activities are in fact manifestations of the behaviour of people in certain environment (Sedaghatnia, 2012). The environment often creates people behaviour. At the same time, human behaviour depends on human needs. In order to make an environment that supports certain activities, the environment must satisfy human needs.

According to Maslow's hierarch of human needs and Steele's physical characteristics of environment that influence the functioning of people, Mehta has created several categories of human needs that can be satisfied by certain characteristic of the environment (Mehta, 2006) (Figure 2-2). The essence of those theories is that if the built environment can support desired activities (which provide opportunities for achievement of interactions between people) it can satisfy most of the range of human

needs. Mehta (2006) proposed that desirable streets would be ones that provide a sense of safety, a sense of belonging, environmental comfort, convenience and physical comfort, a sense of control over the environment, sensory pleasure, and opportunities for social contact and interaction. He states that "streets that cater to the first six categories of human needs in public space are likely to attract more people, and are therefore likely to create possibilities for satisfying the need for social contact and interaction" (Mehta, 2006).
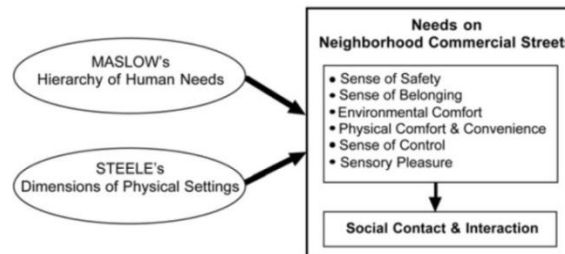
Figure 2-2 Conceptual framework of needs on
commercial streets,   Source: Mehta (2006), P: 21

2.2.1.   Sense of safety

According to Mehta (2006) safety needs include protection from elements, security, order, law, stability and freedom from fear. Wheeler (2001) states that people can feel "safe" or "unsafe" in many different ways. A sense of safety is affected by the characteristics of environment, but it also affects the use of environment (Mehta, 2006). A sense of safety on the street is affected by following environmental characteristics: physical condition and maintenance of the environment; the types of land uses; the configuration of streets; the modifications made to the environment; and the presence or absence of people (Mehta, 2006). Some studies shows that increased traffic and the lack of sidewalks can cause unsafe walking (Gallimore et al., 2011). Streets are considered safer when vegetation is maintained (Kuo and Sullivan, 2001) and where there is a presence of stores or other non-residential facilities (Perkins, Wandersman, Rich and Taylors, 1993). Jacobs (1961) states that the primary task of sidewalks to ensure safety through 'enclosure', as clear delimitation between public and private space, where theses spaces should not merge into one another. She also points out that buildings should be oriented to the streets, so that people are able to watch the street life (Jacobs, 1961).

In addition, the street should constantly have people directly on the street (Jacobs, 1961). This refers to shops, bars, cafés and restaurants that attract people day and night. Jacobs (1961) states that the sidewalks are not primarily kept by the police but by a network of voluntary controls among people themselves. This is seen usually on busy city streets where passengers, street vendors and residents keep an "eye on the street" providing few opportunities for crime (Jacobs, 1961). Presence of street lights, block watch signs, yard decorations and private plantings make street safer place (Mehta, 2006). If people feel fear on certain streets then they are avoiding that streets and streets are becoming more unsafe. If people avoid using a street because they feel unsafe there, the public realm is impoverished. Avoidance is often due to fear of particular environments, such as dark and deserted areas, or ones crowded with the 'wrong kind of people' - as well as of certain incidents (Carmona et al., 2003). Poorly designed (green, natural, space) and supervised can become a locale for crime and drug use (Grammenos et al., 2001). Many people avoid places that offer no alternatives, such as narrow pavements and entrances, particularly those obstructed by 'people who create anxiety' such as alcoholics, rowdy youths or beggars (Carmona et al., 2003). Signs of physical and social disorder, for example presence of graffiti, litter, poorly maintained buildings or vandalism public property, suggest an environment out of control and unpredictable (Carmona et al., 2003).

However, the distinction should be made between 'fear' and 'risk', the difference between 'feeling safe' and actually 'being safe' (Carmona et al., 2003). Usually women are more fearful of victimisation than men (though the gap narrows somewhat with increasing age) (Carmona et al., 2003). Fear of victimisation could be disproportional to real risk. For example, as shown by the statistical records in the UK "young males are most at risk, while those who exhibit most fear are women, the elderly and ethnic minorities. There is, however, a convincing explanation. Being more risk averse, vulnerable people take precautionary measures and are therefore less likely to be victimised" (Carmona et al., 2003, p:120).

2.2.2. Sense of Belonging: Community Places

Scientists, for a long period of time, have pointed out the importance of "symbolic dimensions of shared experiences of people in a neighbourhood" (Mehta, 2006, p:23). This is recognized as one of the basic human needs - "sense of belonging" and shared symbolic identification (Mehta, 2006). With a sense of belonging, people differentiate symbols of the place and in contrast to the prior stage those symbols are respected (Hashem, Abbas and Akbar, 2013). A sense of belonging and emotional attachment along with an ability to influence and fulfil certain needs is necessary to accomplish a sense of community in a place and to define it as a community rather than a just a group of people (Mcmillan and Chavis, 1986). Places that help to shape community attitudes, those that help in forming their community's identity, become important to the neighbours and achieve a social value and meaning (Mehta, 2014). A "sense of belonging" is usually related to informal community gathering places and small local businesses in the neighbourhood, known as "third places" (Lamit, Ghahramanpouri, Nia and Torabi, 2012). These places are usually public or private spaces that are among many others "likely to be favourite spaces, streets, sidewalks, storefronts, alleys, parks" (Mehta, 2006). These places achieve a sense of collective-symbolic ownership and these places are considered very important for all people in a neighbourhood (Mehta and Bosson, 2009). Mehta (2006, p:23) found that "people preferred settings that had stores that were community-gathering places, which held special collective meanings for the people of their neighbourhood and were thus destinations to meet friends and to see other people and activities".

Community places are those places where people are most frequently facing to each other and where share common interests (Whyte, 1980). Whyte (1980) pointed out that there are many ways to facilitate contact between people. The term "triangulation" refers to "process by which some external stimulus provides linkage between people" and prompts people to talk to each other (Whyte, 1980, p:94). Some specific physical objects, such as sculptures in space around which people gather can have effect of "triangulation" (Whyte, 1980). The purpose of this facility is to create a "bridge" between people regardless of their age, gender or culture (Whyte, 1980).

2.2.3. Environmental Comfort on the Street

One of the primary roles of the built environment is protection from the natural elements and the provision of shelter. Therefore, environmental comfort is the most basic human need (Mehta, 2006). Knez, (2003) says, "climate is a nested physical structure in places that may have a significant impact on functional as well as on psychological connotations of places." Mehta (2006) says that environmental factors that influence people's behaviour are wind, shade, sunlight etc. These factors are known as microclimate conditions and they can prevent or encourage outside activities (Mehta, 2006). Microclimate conditions do not refer so much to the 'necessary activities', but it is important to consider the issue of 'optional' and 'social activities'. These activities are affected by the quality of physical condition (Gehl, 2011). Sunlight is one of the most important attractions in the use of open public spaces (Mehta, 2006). The term "plant with the sun in mind" refers to the selection of trees in public space, where it is necessary to "consider their full mature height. Check that trees close to buildings will not grow to block out sunlight or overshadow solar panels (or indeed cause problems to foundations)"(Yeang, 2000). Whyte (1980) found that social activities are happening in places where the temperature is comfortable, with enough sunshine and where there is no wind. He also states that people like to have the option of sitting

in the shade provided by trees, awnings, canopies, and overhangs during the warmer days (Whyte, 1980). Comfortable space is one that has adequate protection from the sun, comfortable temperature and brightness (Carr et al., 1992; Carmona et al., 2003). These factors influence that the space is more or less used (Carr et al., 1992; Carmona et al., 2003).

In relation to the place's identity, the microclimate that people experience "is a physical characteristic that affects their perception and awareness about a place" (Karimnia, 2012, p:20). There is indeed a relationship between microclimate and place identity. Climate may have an important role in place identity and how people conceptualize the place. As a result, it affects people's sense of attachment to the place, for their further activities or social interactions.

2.2.4.   Physical Comfort and Convenience on the Street

Mehta (2006, p:25) argues that "the street environment as a milieu needs to afford the various activities and standing patterns of behaviour that may potentially occur on the street within its cultural context". Thereby, the design of the street environment has to be "anthropometrically and ergonomically sensitive" (Mehta, 2006, p:128). A set of appropriate physical conditions and uses can encourage participation, people use and public life and includes various elements (Montero-Avila et al., 2001). An appropriate sitting space is one of the aspects of physical comfort that particularly contributes to stationary and social activities on streets (Whyte, 1980; Carr et al., 1992; Mehta, 2006; 2007; Gehl, 2011; among others). Whyte (1980, P:34) found that "fixed individual seats deny choice. The designer is saying you sit here and you sit there. People are much better at this than designers" and seating should be designed for people to sit, not for "architectural punctuation". He asserts: "A dimension that is truly important is the human back-side. It is a dimension many architects ignore. Not often will you find a ledge or bench that is deep enough to be sittable on both sides. Some aren't sittable on one" (Whyte, 1980, p:28). People will sit on walls, steps, ledges, etc. if the dimensions are right (Whyte, 1980).

He also states that people like option of sitting and usually they like to sit under trees with a view of the action. In addition to environmental comfort trees are also an aspect of physical comfort. Whyte (1980. p:46) says, regarding trees in public place: "Some architects do not like trees much, big trees in particular. They upstage the elevations of the architect's building. It was for this reason that one of the largest plazas in the country was planted with small, scraggly trees. They would not mar one's view of the building... In a moving view, which is the way we more often perceive spaces and structures, trees do not block out the view" (Whyte, 1980). Trees and other green spaces "have social and psychological benefits that explain the strong consumer preference naturally endowed sites and for house locations facing parks" (Grammenos et al., 2001). Green space is also a play space and it is important for causal contacts and kid's play (Grammenos et al., 2001). Yeang (2000) emphasizes the concept of "urban forestry" as part of the urban landscape or as a "temporary use for sites awaiting longer-term development", which also can provide "recreational and wildlife corridors" in urban space.

Sidewalk width is also important aspect, because people must be able to move comfortably on foot, with less space for cars (Yeang, 2000; Gehl, 2013). Sidewalk characteristics are related to physical access in public place. Physical access is an opportunity for movement, while visual access refers to the ability to see the routes through an environment (Carmona et al., 2003). In some cases there may be visual but not physical accessibility (and vice versa) (Carmona et al., 2003). If people are not able to come, they are automatically prevented from enjoying the space and interacting with other people. Therefore, accessibility is related to exclusion (Carmona et al., 2003). So if, for example, side-walks are not adapted to the movement of all types of users, certain groups of people will tend to avoid that place (e.g., there are no ramps for wheelchairs, mothers with children and the elderly are not able to comfortably use the space). Accessibility is closely associated with the design, in order to prevent micro level physical barriers during movement (Gallimore et al., 2011). Thompson (2002, p:60) states that "side walks and the immediate building height beside the pedestrian pavement should adopt appropriate proportion, so as to form a

human-scale walking environment". Finally, streets as public space are determined as "publicly accessible places where people go for group or individual activities" (Carr et al., 1992, p:50).

Street furniture and physical artefacts are also aspects of physical comfort and can have more than their main role, e.g. aesthetical and functional role (steps around a fountain easily become chair or table) (Life, 2012). Physical comfort also includes corners, nooks, small setbacks in adjacent walls, elements such as ledges, planters etc. (Whyte, 1980; Gehl, 2011; Mehta, 2014).

Whyte (1980) emphasizes the importance of food in public space and the fact that the places with food are places where activities usually start. Therefore, eating establishments such as restaurants and cafes are important aspects. Well-designed food places can help give life to a space (Whyte, 1980). Physical aspects of comfort include a variety of shops and presence of retail (Mehta, 2006). Jacobs (1961) said that places must provide various facilities that will attract different people. Mehta (2006) stressed the importance of a variety of stores, particularly those that served daily shopping needs and were operated uniquely with friendly service and a distinctive ambience. The presence of shops makes a place more active, and attracts more people to come and stay in that place.

Therefore, on the basis of literature, the conclusion here is that the physical characteristics of environment and physical characteristics of land-use are both significant in ensuring a convenient, comfortable, useful, active and meaningful setting to attract and keep people in public space such as street.

2.2.5. Sensory Pleasure on the Street

Sensory experiences such as vision, touch, hearing, smell and taste, are perceptual responses of the human body that help to establish a relationship between the surrounding environment and people (Zeng, 2005). Based on different literature, Mehta (2006, p:28) concluded that pleasure "derived through a sensory experience of the street depends on various stimuli perceived from the environment –from the lights, sounds, smells, touches, colours, shapes, patterns, textures, and so on, of the fixed, semi-fixed, and movable elements that make up the street". In order to achieve sensory pleasure, people in public places like a complexity which is derived from variety, as well an order in space (Rapoport, 1990). Sensory stimuli on a street are perceived from different characteristics of urban environment, such as natural elements (Kaplan and Kaplan, 2009). Sensory of pleasure can be calibrated by the frequency and proximity of green space (Grammenos et al., 2001). Studies of public spaces have shown that aspects of sensory stimuli perceived from the environment, also include other people and activities (Whyte, 1980; Rapoport, 1990; Gehl, 2011; among others); personalized shop windows and signs (Whyte, 1980; Gehl, 2011); building attributes, shop windows and entrances (Whyte, 1980; Carmona et al., 2003; Gehl, 2011); the density and diversity of colour, shape and texture of shrubs and plants (Whyte, 1980; Coley, Sullivan and Kuo, 1997). People avoid places where the building presents a "blank walls" to the sidewalk. These are the walls that have no windows or show windows or any other elements that attract the attention of passers-by (Gehl, 2013). In general, according to these studies the final conclusion is that people choose public spaces that provide "a high level of culturally acceptable sensory stimuli resulting in a complexity that heightens interest without becoming over-stimulated and chaotic" (Mehta, 2006, p:29).

2.2.6. Street environment domains and indicators

Previous literature review has enabled the identification of numerous micro-sale characteristics of a street environment. They involve aspects of safety, aspects of physical comfort, aspects of environmental comfort and aspects of pleasure. For identification of indicators of street environment aspects of control are excluded, because they refer to the signs of occupation of certain territory in terms of the presence of people. The presence of the people has been already involved in indicators of sociability.

Finally, indicators of street environments are prepared on the basis of previous theoretical framework and they are presented in the following table: (Table 2-2)

Table 2-2 Objective indicators of street environment

STREET ENVIRONMENT	
Domains	**Indicators**
Safety	Presence of cameras; Presence of street lights; Presence of neglected vegetation; Presence of graffiti; Unclean path; Building condition
Environmental comfort	Presence of awnings canopies or overhangs etc.; Presence of trees
Physical comfort	Generous width of sidewalk; Car parked on sidewalk; Walking path condition; Presence of benches; Presence of green space (grass); Presence of street furniture (bins, poles, tree trunks...); Varity of facilities; Presence of retail; A high degree of articulation with corners, nooks, elements such as ledges and planters; Presence of places with the possibility of meals and drinks (restaurants and cafes)
Pleasure	Presence of "blank walls"; Presence of special events on the streets (green markets, street musicians...); Possibility to see activities in the ground floors; Paved sidewalks
Community places	Presence of facilities with possibility of sitting outside; Presence of "third object" (triangulation)

2.3.　　Place theory - Place attachment

The relationship between activities (behaviours) and the physical environment is defined by the concept of "place" and "place attachment". Karimnia (2012) emphasizes the importance of perception of the place to understand it and be aware of surrounding stimuli. Therefore, "theory of place" gives a new dimension to the relationship between sociability and urban environments, including the "circumstance of environment perception" (Hashem et al., 2013). Environments or places are defined by the physical characteristics of the environment and by the activities in them, and the meanings that they hold for people (Mehta, 2006). A place is somewhere in which we have a full perception of our own existence (Farshchi, Mabhoot and Rastegar, 2014). People have different imagination about different place. Their feelings can affect their perception of the environment and the creation of their imagination about a place (Farshchi et al., 2014). Perception is a process of sensual information and understanding own meanings about environment (Seamon, 2011). Opposite to "emotions which are function of a stimulus, perception depends on many factors including age, gender, excitations, previous knowledge, expectations, motivational states, different emotional states, decision making, and individual's will" (Farshchi et al., 2014, p:178). Through the perception people give the identity to a place - "image" (Lynch, 1969). Besides "physical structure of a place, people's memories affect giving identity to places" (Farshchi et al., 2014, p:177).

Previous studies found that besides physical attributes, the environment has certain messages, meanings that are perceived, and judged by people according to their motivations, roles, expectations, and other factors (Brown, Perkins and Brown, 2003). This general sense which is formed in humans after they perceive and judge about a certain place is known as "sense of place" (Farshchi et al., 2014). "Sense of place means people emotional thinking about environment that make internal relationship to it so that one's perception and feeling engaged with environment meaning setting" (Hashem et al., 2013, p:858). It is an factor that causes a "space become place", important for coordination between individual environment, better use of the environment, consumers' consent, individuals' sense of belonging to that place, and their continuous presence in there (Farshchi et al., 2014). This applies not only to people who live in certain place, but also to people who only pass through the place and who may be attracted by a memorable

element which person has experienced in the past and is long-established in their mind (Farshchi et al., 2014). This element will cause a person to stop in that place. It is the same for people who live there. If people live certain time period in the same place and they feel a sense of belonging, they will always want to be on that place rather than on some other place. (Farshchi et al., 2014). Hence, people satisfactions are considered as influential factor (Hashem et al., 2013). If a person is able to understand the identity of the place and the different meanings of the place, than person has "cognitive connection with place" (Hashem et al., 2013). Concept sense of place is quite indeterminate and it is not easy to define and measure it (Hashem et al., 2013). There is suggestion of the concept of "place attachment" to measure it (Hashem et al., 2013).

Place attachment is the process through which people and groups form bonds with places (Lewicka, 2008). A recent study on place attachment conceptualizes it as a multidimensional phenomenon involving person, place, and psychological process of attachment (Scannell and Gifford, 2010). It is one dimension of overall place sensitivity and positive emotional attachment that evolve between place and person (Hashem et al., 2013). A positive experience of a place is the effect of positive beliefs and emotions that people create through interaction with place. As a result, meaning is established (Scannell and Gifford, 2010). In this process, people develop their connection with others and the place (Hashem et al., 2013). A review of literature about place attachment classifies factors which influence the creation of place attachment (Tuan, 1977; Lewicka, 2008; Hashem et al., 2013):

- **Physical factors**

Physical factors play a direct role in people's satisfaction with certain environments and an indirect role in "place attachment". Some of the characteristics that indirectly affect the "place attachment" are: facility and services, place status in urban setting, relationship to environment etc. (Hashem et al., 2013).

- **Social factors**

Positive connection between physical place and personal satisfaction are also related to the social factors of a place. Social factors that took place in an environment facilitate meaningfulness of place for individuals. Place attachment is developed through positive interaction between people and "social compatibility in place" (Hashem et al., 2013). Some scholars believe that place attachment is based on individual participation, social network engagement and cultural interactions (Farshchi et al., 2014).

- **Cultural factors**

Place attachment develops out of symbolic meanings shared by group of people, and it is related to those activities people do in their cultural setting. Groups, families, society members and similar cultures are common in place attachment (Hashem et al., 2013).

- **Personal factors**

At the individual level, place attachment is different among people and it develops out of personally important experiences. Place attachment is the result of these personal factors and characteristics, and it is based on gender, class, age, ethnic and culture, individual tendencies, liberty, power and so on (Hashem et al., 2013).

- **Memories and experiences**

Place attachment occurs when people experience long periods of time in certain environments and develop certain memories about those places. Scholars have found that people remember a place that they have experienced first-hand, and that place becomes part and symbol of the experience (Hashem et al., 2013).

- **Place satisfaction**

Emotional connection between person and place depends on place satisfaction and how a person assesses the place. This depends on individual perceptions of the place, quality and security (physical, social and emotional). Place attachment is related to people's needs and expectations about the place. Therefore, an important factor of place attachment is place satisfaction. Place attachment theory indicates

that people develop place attachment based on their place expectation due to previous experience. The satisfaction factor depends on elements such as facilities, place adaptation, visual characteristics, management, economic values, and resident's images of similar place, social setting, architecture and urban planning features as well as background features (Hashem et al., 2013).

- **Interaction and activity features**

Activities and interaction between person-place and person-person are an important factor that has significant impact in promotion of place attachment. These factors are a result of individual interaction with social and physical characteristic of place in the form of emotional meaning and behaviour, and this leads to place attachment. In turn, place activities contribute to the place meaning, which is the cause of place attachment. Studies have showed that place attachment is promoted through periodical celebration and events, permanent activities, festivals, story activity and so on (Hashem et al., 2013).

- **Time factor**

Time factor or long-term residency increases place attachment (Hashem et al., 2013).

In sum, the combination of these factors results in different sense and reactions about places and in turn these senses might be positive or negative (Hashem et al., 2013). If people have a negative sense about a certain place then they might be indifferent to that place or might even avoid it. On the contrary, when a person feels a positive sense towards a place it means that the person loves that place and wants to be there with others.

3.   METHODOLOGY

This chapter has two sections. The first section presents a short overview of the case study area. In the second section the data requirements and methods are identified.

3.1.   Case study area

Figure 3-1 Case study area in city of Novi Sad, Source: www.novisad.cc

The field work of this research has been conducted in the second largest city in Serbia, the city of Novi Sad (Figure 3-1). The city is located in the southern part of Pannonia Plain on the banks of the Danube River (Geografskipodaci | Novi Sad, 2014). According to the 2011 census the population of the metropolitan area stands at 341,625 people (Census of Population, 2014). The urban area is 129.7 km2 (Нови Сад данас | Novi Sad, 2014). The survey is done in the city centre - Stari Grad (Figure 3-1).

Stari Grad: This is a 11.8 ha area with a population of 4,145. Of this, males make up 1,931 (46.88%) whiles females are 2,188 (53.12%) (JKP Informatika, 2014). The streets are mainly narrow and winding, and give the city a mesh structure. The core of the city has a more horizontal street silhouette because there are no dominant tall buildings.

The three the most crowded pedestrian streets in the city centre were selected for analysis. All three streets are connected to each other but there are some differences that give every street a specific character. **Street 1** (street Kralja Aleksandra) (Figure 3-2) has the highest number of street benches and greenery, **Street 2** (street Zmaj Jovina) (Figure 3-3) is characterized by restaurants and cafes, while **Street 3** (Dunavska street) (Figure 3-4) is characterized by certain number of restaurants and cafes but the absence of trees and benches.

Figure 3-2 Street1, Source: www.panoramio.com

Figure 3-3 Street 2, Source: www.panoramio.com

Figure 3-4 Street 3, Source: www.panoramio.com

3.2.   Mixed method approach

This research uses a mixed-method approach that combines quantitative and qualitative methods for the collection and analysis of data (Creswell, 2003). Qualitative and quantitative data have been collected simultaneously and merged during the analysis phase to add dimension to the findings (Mehta,

2007). The primary objective for this study was to investigate the relationship between the micro-scale street environment and sociability of the streets in the city centre considering both objective conditions and subjective perceptions. As a part of the mixed-method strategy, the inquiry employed a multiple-method approach including a diverse technique involving direct observation (field notes, photography, and recordings), walk-by observation, and interviews, to collect data on the behaviour of people on the streets, peoples' perceptions and street characteristics. Quantitative techniques provide data which have been analysed using quantitative methods, while qualitative part of research excels at 'telling the story' from the people's viewpoint, providing the rich descriptive detail that sets qualitative results into their human context (Mehta, 2007). Therefore this research combines these methods: observation and walking interview.

3.2.1. Sample and sample techniques

Three streets were selected for the analysis. Purposive selection of the street was depending on their most specific characteristics. One street is recognizable by the presence of greenery, the other by presence of the restaurants and third one by the absence of greenery (see section 3.1). Sampling strategy was defined for data collection in the field. Time of observations was determined after several pilot studies in the field work when it was established that the largest crowd in the streets is in the evening around 6 pm. Time around 6 o'clock in the evening was taken as the time for the final observation that was used for the analysis. During the process of observation all people of the studied streets were observed, regardless of gender and age.

Sampling that is applied in the selection of the people who participated in the walking interviews is non-random/sampling - Quota sampling. The main reason for this is the ease of access to the population, but also guarantees inclusion of target groups. Selection is conducted on the basis of physical characteristics of population, and all users were divided into 6 groups: Male/female teens and younger adult (15 to 25 years), male/female adult (approximately 25 to 65 years), male/female older adult (approximately over 65 years). The aim was to carry out the same number of interviews for each of these categories. There were sixty interviews in total. All respondents were users of almost all three streets at same time. They were stopped in one of the three analyzed streets and during the walk they would usually pass to another street, given that the streets are interconnected. This type of sampling was used because diversity of street users is one of the characteristics sociable streets (PPS, 2014). Furthermore, this method includes all street users.

3.2.2. Data type and collection techniques

In this research quantitative and qualitative data were collected using methods of observation and walking interview.

Observation was used to obtain objective condition of sociability and objective condition of street environment. Objective conditions were investigated according to predefined indicators (see Appendix II). Indicators which were chosen for this research are indicators of sociability, such as the number of people in interaction with each other, as well as indicators of street environment (number of benches, street lighting, street vendors etc.). This research used a technique of mapping of indicators on printed paper maps on the spot, but also additional input data was recorded by video camera at the same time during the observation. Original maps were downloaded from the official website for urban planning of the city of Novi Sad. Initial maps were used only as a base because they were only showing existing streets and parcels. Predefined indicators are measured directly on the street, as well as the distance between the different elements in the street. Indicators are in the form of different symbols (dots, squares, etc.), which were previously formed in the legend. Many of the indicators are presented on the basis of visual observation (e.g., the physical condition of the buildings). A video camera was used to facilitate the mapping after returning from the field work to enter additional data that was accidentally missed during the mapping on the spot (e.g. the exact number of people sitting in a café, their activities). This technique

enables accurate data entry from paper maps into a computer (CAD programs), which happened in the next phase (sorting data upon return from the fieldwork). CAD programs offer more already formed elements that are readable and more adaptable to this study (e.g., bench is not only in the form of a rectangle, but in the true form of bench in the 2D in scale). Also, past experience and long work with CAD programs has enabled faster operation. The length of the street segments was determined based on the ability to examine the contents of the streets and the activities that occur in a range of 10 meters from one point of view of the observer, without visual obstacles. Ten meters is the largest possible range that could be taken to see all the elements of the street, according to the personal visual abilities of the observer. Greater range prevented precise identification of indicators. This range was later detained during data analysis, because in these ten meters sufficient street characteristics and street events are included, in order to illustrate that there are certain variations in the quality of the whole street.

Walking interview is a form of qualitative research technique that takes into account the perception of the people (Evans and Jones, 2011). The intention was to interview the same number of people in each of the previously defined groups with respect to age in order to gain a better insight into the people's perception. Walking interviews were carried out within the streets chosen for analysis. During the interview, respondents answered questions and gave their opinions on different, open-structured questions that have previously been created in the framework of domains and indicators of sociability and street environment. (See Appendix I). The main objective of the methods of walking interviews was to obtain subjective perception on sociability and subjective perception on street environment. Both of these methods used similar tools such as: photographs, cameras, GPS, voice recorder, notes.

3.2.3. Data analysis tools and techniques

Objective condition

Objective condition was investigated on pre-defined indicators (derived from literature) (see table 2-1, section 2.1.6 and table 2-2, section 2.2.6). Techniques for data analysis are borrowed and adapted from Shumi's research on the level of walkability (Shumi, 2013). Indicators are measured for every street. Two measurements of objective condition were made in the research and have the same technique. One refers to measurement of indicators of sociability and the other is measurement of indicators of street environments.

Every street is divided into 10 meters segments, where the value of the segment is considered as homogeneous. After the process of dividing streets, indicators were measured per each segment and weighted using Boolean logic and numeric classification as well as standardization has done using a spread sheet based multi-criteria evaluation which included standardization for positive and negative values. If there is bench for sitting, it increases the street environment, but if that place is without appropriate lighting and therefore is dark, it decreases the quality of street environment. Knowing that all elements could be important for sociability, the same weight was given to each indicator separately, and with that results are generated for each street segment. Each segment gets a score that ranges from the smallest to the largest value (taking into account all the scores in each segment). This score is then divided into three equal parts (from the lowest score to the first third-low level; from the first to the second third- medium level; over two-thirds to the highest score -high level) in order to obtain equal relations among scores. Zero (0) means that it is not sociable street environment and no sociability, while one (1) means the most sociable street environment and sociability. For the visualization of the level of sociability and level of street environment using Ilwis SMCE and ArcGis, the scores of all segments were calculated and also classified into three categories, using equal interval classification - high, medium and low (Shumi, 2013). Different colour show different level.

One map shows two results: sociability (high, medium, low) for the same segments of ten (10) meters and one that shows street environment also (high, medium, low). Overlapping of the two results on a map it is possible to visually compare relationship between sociability and street environment, while

the use of cross tables created in SPSS software has enabled seeing the exact ratio of segments of sociability and street environment. Each street had different thresholds according to the presence or absence of indicators in these streets. This has enabled seeing the exact relationship between sociability and street environment depending on the actual situation.

Subjective perception

The quantitative data of questionnaires were analysed using Microsoft excel. The results of these questionnaires were used for the analysis of subjective perception. The graphs were prepared in this software. Data were grouped according to age, gender and residency of respondents. In this way it is possible to see differences in the perception of people in relation to their age, gender and residency. Data in form of the story from walking interview were transcripted in word document and analysed. Stories were analysed on the basis of most repeated terms that were used by the respondents (that were considered relevant for a specific analysis and according to the similarity of answers). Likert scale was used to rate subjective perception on sociability and street environment where scores were derived from Microsoft excel sheet. In the walking interview questionnaire a 1 to 5 Likert scale was set for each indicator based on satisfaction level to quantify the perceptions of people. 1 is considered as worst, 5 as best. The scale considered 1 as negative effect and 5 as positive effect. If respondents perceive that the part of city that she or he uses has medium safety, then the score of respondent's perception on safety is 3. The value of perception indicates the satisfaction level of the respondents. A low-value level indicates that satisfaction level is low and scores are 1 or 2, while high level indicates high satisfaction where the scores are 4 and 5. The questions in the questionnaire were designed to coincide with the values of objective indicators of sociability and street environment. In this way it was possible to compare the objective situation and subjective perception in the later analysis (Shumi, 2013).

Comparison

Comparison of objective condition and subjective perception is conducted in the framework of the established domains of sociability and street environment. As a result similarities and dissimilarities between them have been further identified on the basis of factors of "place attachment".

The following analysis is related to the interpretation of human activities on the street. Maps show whether stationary sociability is more present, or people are more moving through the street. The maps show the presence of people on the streets depending on their gender and age (the same colour for the same gender; different sizes of symbols for different ages).

4. SOCIABILITY AND STREET ENVIRONMENT. OBJECTIVE CONDITION

This chapter represents the analysis of sociability and street environment through objective condition of the three investigated streets in the city centre (Figure 4-1). Three streets have been selected for further discussion by measuring objective indicators of sociability, objective indicators of street environment that encourage sociability and through the comparison of both objective measurements respectively. In this chapter there is a detailed description of street 2, while the analysis of the other two is in Appendix V. This one is chosen as the most representative one, because it shows the relation of sociability segments and segments of street environment the most (it has the biggest combination of different segments). To avoid repeating of the same characteristics which repeat in all three streets, street 2 is chosen since it's analysis includes also the other two streets.
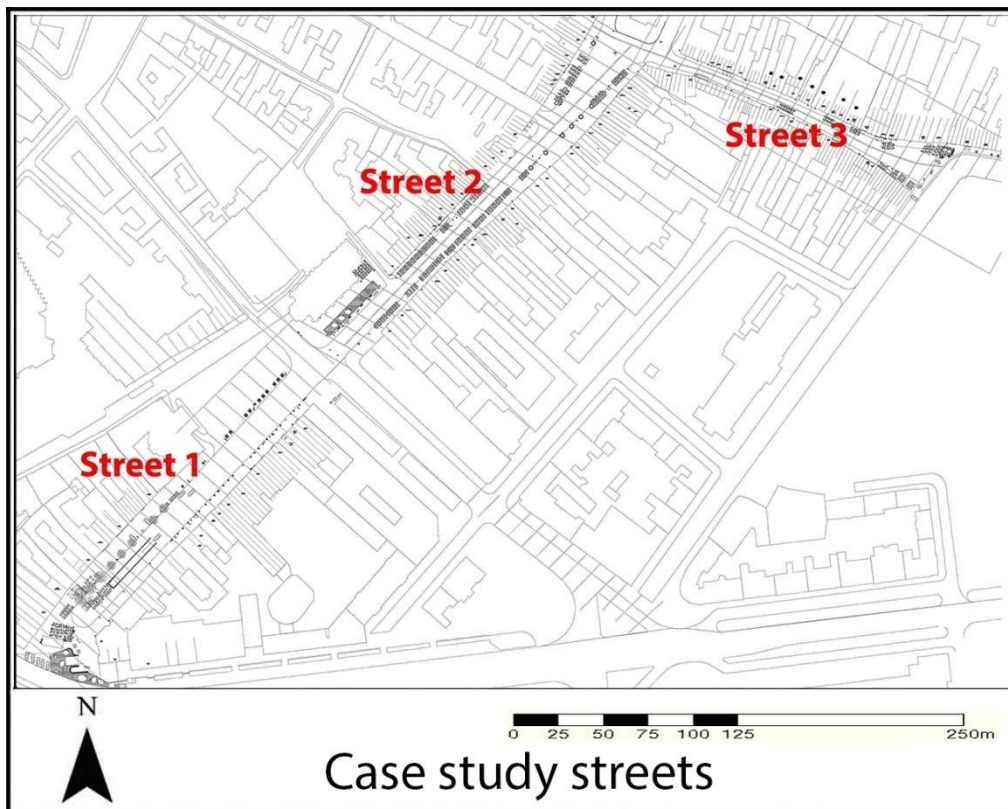
Figure 4-1 Map showing the three streets studied in the city center of Novi Sad

4.1. Main street - (Street 2-Zmaj Jovina)

Map of street 2 (Figure 4-2) represents the level of sociability (1) and level of street environment (2) in different segments. Different colours show the different levels in both categories of measurement, where the red colour represents low level, yellow colour represents medium level and finally, green represents a high level of sociability and street environment. Street 1 is 250 m in length and has been divided into twenty five (25) segments, where each segment is scored according to the objective indicators of sociability and objective indicators of street environment.

	Male	Female	Total
>65	7- 3.5%	6 - 2.8%	13- 3.1%
25-65	87- 43.9%	81- 38%	168- 40.8%
15-25	91-45.9%	114- 53.5%	205- 49.8%
<15	13- 6.5%	12- 5.63%	25- 6%
Total	198-48.1%	213- 51.8%	411- 100%
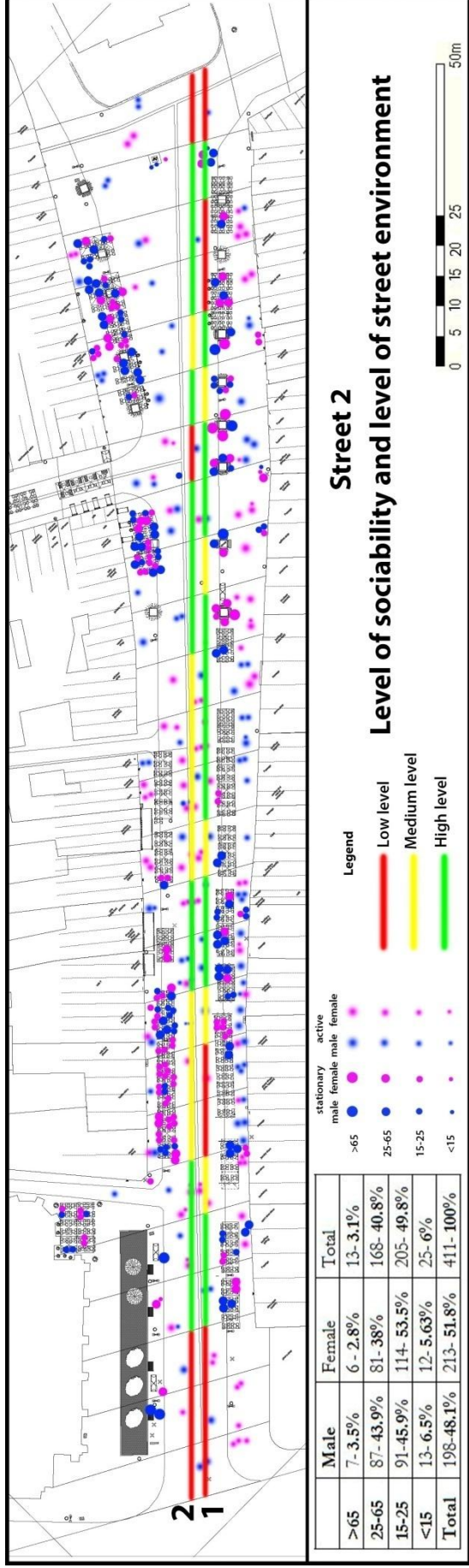
Figure 4-2 Street 2 map- Level of sociability (1) and level of street environment (2)

Figure 4-5 Increased segment-matches and mismatches (colored edges - street segments; colored surface areas-sociability)

Figure 4-4 The older people are using benches

Figure 1-3 The child walk with a parent

4.1.1.   Objective sociability

Number (1) on the street 2 map (Figure 4-2) represents the level of sociability in different segments. These particular scores range from 0.452 to 0.952. The High Sociable Street Environment group includes segments having scores ranging from 0.785 to 0.952; Medium Sociable Environment group includes segments having scores which range from 0.619 to 0.785; Low Sociable Environment group includes segments scored from 0.452 to 0.619.

- **High sociability**

Twelve segments of high sociability are primarily characterized by the presence of people. All segments have the presence of women and the presence of more than two groups of people (a group here means two or more members involved in a common activity). High level segments have groups made up of different ages. These segments mainly scored higher than the other segments because they all have the previously mentioned features as well as some of the following features: the presence of children or the presence of the elderly or absence of people who are alone. However, although they have the greatest sociability there is no segment that meets all of these criteria simultaneously. Though, in these segments the overall combination of criteria only misses one of the following i.e. if there is presence of children and the elderly there is also the presence of people who are alone. Segments from the lower categories, for example, have lower scores because the segment has more than one of negativity in overall combination, for example, although a segment has no people who are alone, there are no children or no elderly.

- **Medium sociability**

Five segments have medium sociability. As stated earlier for high sociability segments, these segments meet almost the same criteria, such as the presence of women and the presence of more than two groups of people (here, a group means two or more members involved in a common activity) and different age groups. But these segments mainly scored lower than the segments with high sociability because they always have more than one combined additional negative element. For example, a simultaneous lack of children and the elderly, or people who are alone in a segment with no presence of children or the elderly and so on.

- **Low sociability**

Eight segments have low sociability. Present in these segments are people and exclusively women, too. Still, those segments mainly scored lower due to the complete lack of children and the elderly, as well as the presence of only one age represented in groups. Finally, also, because of the small number of groups of people.

4.1.2.   Objective street environment

Number (2) on the street 2 map (Figure 4-2) represents the level of street environment that encourages sociability in different segments. Particular score ranges from 0.484 to 0.925. The High Sociable Street Environment group includes segments having scores ranging from 0.778 to 0.925; the Medium Sociable Environment group includes segments having scores which range from 0.631 to 0.778; the Low Sociable Environment group includes segments scored from 0.484 to 0.631.

- **High street environment**

Twelve segments of the street have a high level of street environment. Those segments having a high street environment have generous sidewalks, paved, clean and well-maintained walking path with no parked cars that may hinder the people using the street. All these segments are surrounded by buildings that have no graffiti and that aren't in need of maintenance. The ground floors of these buildings do not have "blank walls" and they are quite transparent. It is possible to see the activities taking place on the ground floors. All of these segments have a variety of different facilities at ground level (usually more than two) and the presence of retail. There are no alcoholics, beggars etc. In all of the segments there is some element of street furniture such as lamps, baskets, fences etc. There are restaurants and cafes with awnings and the possibility of sitting is presented in every segment. In half of the segments trees and benches are present. In this street the presence of trees strongly correlates to the possibility of sitting in the shade. Also, in most of these segments is a noticeable presence of some street events. Although some of the segments still lack some of the elements of street environment, the overall score of all street elements by segment is higher than the score for the overall score of street elements per segment for medium and low segments.

- **Medium street environment**

Eight segments have a medium level of street environment. Those segments having high street environment have generous sidewalk, paved, clean and well-maintained walking paths with no parked cars that may hinder the people using the street. Surrounding objects do not have graffiti and do not require maintenance. The ground floors of those segments have a variety of shops (more than 2) with the presence of retail. There are restaurants and cafes with awnings and with the possibility of sitting presented in every segment. All these elements mentioned so far coincide with the previously mentioned elements in High Level Segments. However, these segments have a lower score because of the presence of beggars in some segments. Furthermore, there is a lack of street events (except in one segment), no presence of vegetation (except one tree in one segment) below which is a bench. Also the presence of public seating is limited in all segments. More than half of medium level segments are without any street furniture or it is not possible to see the activity on the ground floor of buildings. That is precisely what distinguishes the overall score of these elements from high level segments.

- **Low street environment**

Five segments of street have a low level street environment. These segments mainly scored lower because the segments have no option of sitting, public benches or restaurants. Furthermore, there is no protection from the sun, in terms of trees or canopies. There is no diversity of facilities on the ground floors. Also, some of the segments have no any special street events. Compared to the segments with larger scores, these segments have the highest absence of positive street elements.

4.1.3.   Assessment between sociability and street environment

By overlaying levels of sociability and levels of street environment, it is possible to observe the causes of matching or mismatching on each segment of the street. Since the analysis of both segments use the same dimensions. According to the cross table (Table 4-1), thirteen (13) street segments of twenty-five (25) segments are mutually consistent. Of these, seven segments of high street environment are consistent with the same seven segments of high sociability, two medium street segments overlap with two medium sociability segments and four low street segments overlap with four segments of low sociability. The remaining twelve (12) segments do not coincide with each other.

Table 4-1 Mutual relation between segments of sociability and segments of street environment

Street 2

			Street environment			Total
			High	Low	Medium	
Sociability	High	Count	7	1	4	12
		% within Sociability	58.3%	8.3%	33.3%	100.0%
		% within Street environment	58.3%	20.0%	50.0%	48.0%
		% of Total	28.0%	4.0%	16.0%	48.0%
	Low	Count	2	4	2	8
		% within Sociability	25.0%	50.0%	25.0%	100.0%
		% within Street environment	16.7%	80.0%	25.0%	32.0%
		% of Total	8.0%	16.0%	8.0%	32.0%
	Medium	Count	3	0	2	5
		% within Sociability	60.0%	0.0%	40.0%	100.0%
		% within Street environment	25.0%	0.0%	25.0%	20.0%
		% of Total	12.0%	0.0%	8.0%	20.0%
Total		Count	12	5	8	25
		% within Sociability	48.0%	20.0%	32.0%	100.0%
		% within Street environment	100.0%	100.0%	100.0%	100.0%
		% of Total	48.0%	20.0%	32.0%	100.0%

In the further text the relation between segments of sociability and segments of street environment is explained.

- **High sociability-High street environment**

The larger percentage of total matching segments (28% - 7 segments) happens at level of high sociability-high street environment. This proves that high sociability is conditioned by high quality environment, and that people generally tend to spend time in most quality parts of the street.

The segments where high sociability coincides with high street environments shows that these segments provide the conditions for the sociability of all kinds of age groups and various forms of interaction. However, since the segments of the high street environment are characterized by the presence of diverse sitting possibilities it can be noted that sitting is usually the chosen form of sociability. People in these segments tend to sit more than to walk or stand. In these segments the largest presence of different ages is found (including children and elderly at the same time in one place).

Segments of a high street environment provide facilities that are interesting to children, e.g. the monument is a place around which the largest number of children was noticed. Due to the lack of green space and other facilities for children's play, the monument is an unusual element on the street and therefore attracts the attention of the youngest. The shape of the monument ensures that the children climb on it and used as a "toy". Also, the position of the monument is in the middle of the street and there are no barriers that obscure the view, so parents very often sat in a nearby cafe while their children play around the monument. Children have not been seen sitting in cafes. Mostly, they are sitting with parents on benches or they are walking (Figure 4-3).

Similar is the case with elderly people. They also have not been seen to sit in cafes, they are not even seen walking. In fact, they make up the largest number of users of public benches (Figure 4-4).

- **High sociability-Medium street environment**

In these segments, only certain elements of street environment are missing compared to the high street segments, but still in them the majority elements of physical comfort, environmental comfort, pleasure, community places and safety are met.

- **High sociability-Low street environment**

There is only 4% of overlaying of segments of high sociability and low street environment (one segment) (Figure 4-5). Even though the percentage is small, the result is unexpected in relation to the assumptions that high sociability is conditioned by high environment. Detailed analysis shows that this segment has absence of almost all qualities of street environment, besides benches. Also, segment is positioned at the middle of the street, and sitting there allows a wide view.

According to the analysis, older people choose benches that provide a good view around them. The presence of shade does not play an important role in the selection of benches. Older people were not observed on the benches that have better trees above the bench but which are at the end of the street where there is not a lot of people. They tend to choose the bench where they have a pretty broad view of several parts of the street. Even those street segments besides the benches which do not have some other content are chosen by the elderly as a place to spend time. Based on this it can be concluded that the location of benches with good view is an important element of street environments for older people. The lack of other street elements does not play important role for the elderly and does not affect their stay too much if they have bench with "good view". However, the absence of other street elements is reflected among the other age groups which are mainly in these segments one comes across "in passing". This indicates that this segment has no other elements that would keep people.

- **Medium sociability**

As already mentioned, segments with medium sociability are usually characterized by the presence of people age between 15 and 25 years and people age between 25 and 65 years. There is not so much diversity in age and children and old people are often missing.

- **Medium sociability- medium and high street environment**

Two segments of medium sociability coincide with two segments of medium street environment, while the three medium sociability segments coincide with three segments of high street environment. All segments of the medium sociability have restaurants and bars. Not one segment does not coincide with the low street environment (Figure 4-6). According to this it can be concluded that the age group between 15 and 25 years and 25 to 65 years (as the most common feature segments low sociability) avoid segments of low quality and most frequently chose the segments of higher street environment.

Figure 4 -6 Young people sit in bars

However, some of the bars are much emptier in relation to the others. Bars are presented both in segments of the high street environments and segments of the medium street environment. The first association is that if there is a bar or restaurant, the other characteristics of the street does not play an important role. However, the overlap is much larger across segments of high street environments that have a higher score in the combination of all street characteristics in relation to the segments of the medium street environments. This indicates that the people who choose bars accept the possibility of sitting in an environment that provides environmental comfort (presence of trees or umbrellas), a variety of colours and textures, for example flowers, the brightness, the possibility to observe activity on the ground floors of buildings etc.

In the medium segment of sociability it is more common to observe children than the elderly. This is explained by the fact that older people are adults that can choose independently what the best is for them, while children are usually accompanied by parents, who again choose the places that are attractive to them. However, as medium sociability is characterized by sociability with medium diversity in gender and age, it means that these segments have characteristics that attract or repel certain social groups. For example, the lack of a bench seat with an adequate location almost completely excludes the age group of people more than 65 years. Also, the lack of some interesting element on the street that is able to attract children's attention causes that this age group to merely pass through the street without stopping.

- **Low sociability- Low street environment**

Four low sociability segments coincide with the three four street environment segments (16%of total overlaying segments). This indicates that a poor urban environment influences people to avoid staying in such an area, so there is rarely the presence of people who are just "passing by".

- **Low sociability - High and medium street environment**

Unmatched segments of lower sociability and segments of higher street environment are unexpected phenomena in relation to previous statements that high street environment causes a high sociability. These segments have an even greater lack of diversity of people. In addition to the absence of children and the elderly, mostly absent in these segments are one of the two other age groups. In this segment are predominantly people aged between 15 to 25 years or people aged between 25 to 65 years. This explains the fact that people avoid places where there are no people of a similar age group. Although both age groups select bars in a high quality street environment there are variations in the choice of bars where they sit. For example, people aged between 25 and 65 are very often parents with children, and therefore they choose bars in the vicinity of some interesting content for children, and from where they can watch children. This group of people is most commonly found in bars that have a good view of the monument around which the children play. Also, this age group more often elect to visit places such as pastry shops and restaurants. The age group of people between 15 and 25 years often choose places like bars where it is not crucial to eat. This also can be explained by the fact that people aged 25 to 65 years earn more money and can afford meals outside the home, while people between 15 and 25 years are mostly high school students or students with less income.

4.1.4.   Overall results for street 2

Finally, according to the results street 2 has a mainly high street environment, which should encourage sociability. The results indicate that sociability that is going on there is also predominantly high. Looking at the overall level of the street, the relationship between these two objective measures is noticeable in terms of the diversity of people in terms of age. The presence of children and the elderly is significantly limited compared to other age groups (only 6.8%). Sociability of a segment largely depends on what the segment offers to a certain age group. High street environments are the most common choice of

people younger than 65 years, while for people older than 65 years, the presence of benches with good location is more important than other characteristics of the street. Therefore, according to observation, segments where older people spend time does not need to be chiefly in high category. The overall quality of the street is far more important for people age between 15 and 65 years, while for children and the elderly there are much more important individual elements that each of these segments offers. Street environment apart from some general characteristics should have more elements that attract children and the elderly. Also, depending on what each of the segments offers, people tend to stay in that segment or are just passing through. In the case of street 2, there is quite an equal number of people who are in motion and people who are not in motion.

4.2.   Observations of objective condition

From the analysis of three different streets (street 2 is presented in this chapter; the other two streets are in Appendix V) certain general observations can be made about the impact of street environment on the sociability of people.

On a general level, all three streets mutually differ in levels of sociability and on levels of street environment, in dependence on the most numerous segments:

1. Street 1: Medium sociability-Medium to high street environment
2. Street 2: High sociability- High street environment
3. Street 3: Medium sociability - Low to medium street environment

This shows that sociability is mostly in accordance with the quality of street environment. Relation of sociability and street environment was examined in more detail on the level of segments, and not on the level of an entire street. Detailed analysis of all three streets showed that the individual relation of segments in all three streets is the same, and that people have the same behaviour in accordance with an offered street element. Difference in behavior depending on the gender was not notices. Certain characteristics of street environment have a big impact on the presence of different age groups. The following most specific observations regarding to age of people can be made (Table 4-2):

Table 4-2 Most specific observations regarding to age of people in the three streets

	<15	15 - 25	25 - 65	>65
Safety		- Neglected vegetation close to cafes leads to the avoidance of those parts of cafes;	- Neglected vegetation close to cafes leads to the avoidance those parts of cafes;	
Environmental comfort	- Green space is not important unless there is some interesting stuff that attracts the attention of children (e.g. monument);	- Avoid sitting in cafés where there is no shade;	- Avoid sitting in cafés where is no shade;	- Presence of shade does not play an role in the selection of benches; - The lack of benches with adequate location excludes this age group

Physical comfort and convince	- Possibility of sitting is not important for children unless they have the ability to play; -Do not sit in cafes, usually they are in vicinity; - Sitting on benches;	- Bars where it is not crucial to eat;	- Parents with children sit in bars in vicinity of interesting content for children, from where they can watch children; - Places such as pastry shops and restaurants; - Benches under the tree;	- The largest number of users of public benches; - Location of benches with 'good view';
Pleasure	- Vendors of flowers do not have the allure not street events that attract children;	- Presence of variety of colours and textures important for choice of sitting places;	- Presence of variety of colours and textures important for choice of sitting places;	
Community places	- The monument (unique element - "triangulation") has a function of 'toy'; - The lack of interesting elements able to attract attention, makes this age group only go through the street and not stop;	- Avoiding cafes where people are much older than them (>65 years);	- Avoiding cafes where majority of guests are younger than them; - Cafes with a family atmosphere;	- Presence of restaurants and bars adapted to their age; - Avoiding cafes where there are no people with similar years of their age; - Do not use the bench if there are cafes adapted to their age and if there is the presence of the same age

Comparison of sociability and street environment through high, medium and low segments has illustrated the differences in the needs between age groups in the street environment. In all three streets high sociability segments are those segments that are characterized also by the presence of children and the elderly. Mainly in all three streets, medium sociability is usually characterized by the presence of age groups younger than 65 years.

The fact that the segments of medium sociability usually coincide with segments of high street environment indicates that people between 15 and 65 years require high quality street environment. In addition to the possibility of sitting in bars, medium sociability (mostly people between 15 and 65 years) coincides with the segments of high street environment that meet also other needs of the physical comfort, such as the presence of bins, lamps and other street furniture, a variety of facilities and the possibility to see the activities on the ground floors, aspects of environmental comfort, in terms of canopy, trees; aspects of pleasure, e.g. presence of flowers and so on (Figure 4-7). This explains why in some bars that are in the medium and low street segments no people between 15 and 65 years are present. For the age group between 15 to 65 years just the possibility of sitting is not crucial if the overall quality of the street environment is not at the high level.

Contrary to younger people, the possibility of sitting is crucial to the elderly. This can be seen in the fact that almost no elderly walk through the street. So, the only condition that segment must meet is the possibility of sitting, regardless of the aspects environmental comfort (sitting on the benches above which there is no tree), the presence of flowers and so on. All other criteria for their presence are tied to

characteristics of sitting place in the terms of location with a 'good view' and the design of benches that allows them to sit in vicinity of other people and do not feel that disturb someone's privacy. This explains why the segments of high sociability very often coincide with segments of lower street environment.

Figure 4-7 Young people sitting in a high quality environment

The fact that almost all segments of the low street environment coincide with the segments low sociability indicates that these segments do not meet the needs of any age group. Certain segments of low sociability coincide with segments of higher street environment. The explanation can be found at the time of observation, when in the moment there were not people in the street. In the opposite case, when segments of low street environment coincide with segments of higher sociability, then the explanation may also be linked to the time of observation, i.e. in the fact that people are there accidently at the moment of the observation (people passing).

Additional explanations for the discrepancies between certain segments of sociability and segments of street environment can be found by analyzing subjective perception.

5. SOCIABILITY AND STREET ENVIRONMENT. SUBJECTIVE PERCEPTION

The level of the sociability and street environment is also measured through subjective perception and is presented in this section, but not for each street individually. Instead, it is was done for city center in general. Subjective perceptions have been informed by the Likert scale (1 to 5) for the measurement of the perceptions of 60 people who use the streets in question where low to high values are considered as negative to positive respectively.

5.1. Subjective perception of sociability

5.1.1. Familiarity

According to the Figure 5-1, the familiarity of people with city centre is in the high category. For the largest number of people, the city centre is very familiar, or familiar enough, regardless of gender, age and residency. Although the percentage of people who indicated medium familiarity is small compared to the higher values, the highest percentage among these respondents are not residents of the city centre, usually males older than 65 years.

| | Male (<25) | | Female (<25) | | Male (26-65) | | Female (26-65) | | Male (>65) | | Female (>65) | | Total |
	Rez	No R	Rez	No R	Rez	No R	Rez	No R	Rez	No R	Rez	No R	
1 Not familiar	0%	0%	0%	25%	0%	0%	0%	0%	0%	0%	0%	0%	2%
2 Not enough	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
3 Medium	0%	29%	33%	0%	0%	40%	0%	20%	0%	100%	0%	0%	17%
4 Enough	0%	14%	33%	25%	80%	20%	0%	20%	0%	0%	17%	50%	22%
5 Very familiar	100%	57%	33%	50%	20%	40%	100%	60%	100%	0%	83%	50%	60%
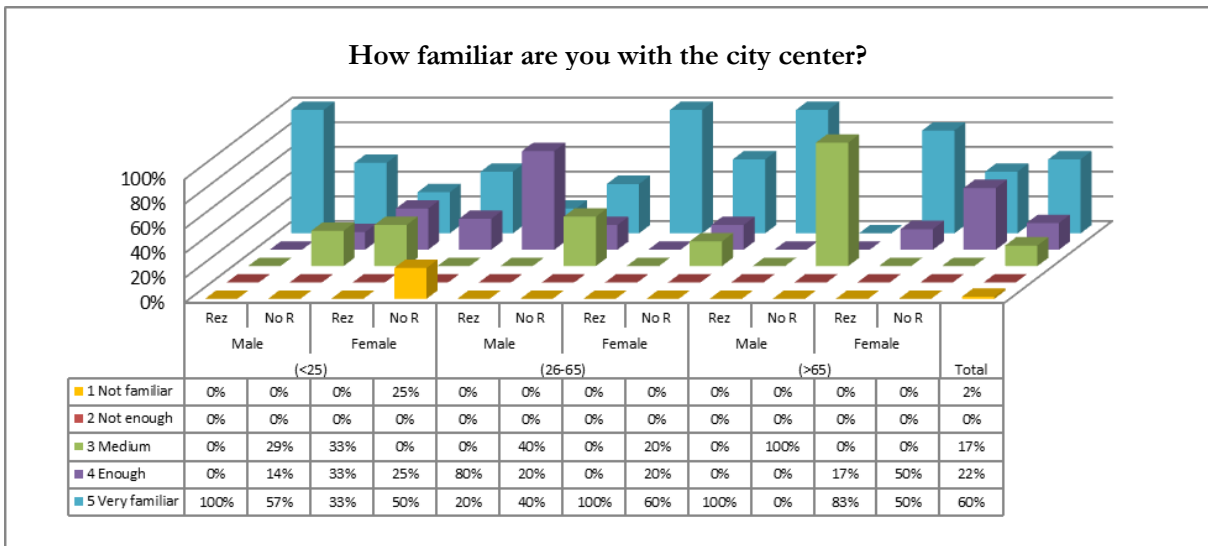
Figure 5-1 Perception on familiarity in city centre

5.1.2. Gathering with friends

According to Figure 5-2, the respondents' answers are quite varied. The largest percentage of respondents said that they often or very often socialise with friends in the city centre. People between 15 and 25 years are the largest percentage of respondents in this group, and there are almost no respondents in this age group who gave a different answer. People aged between 25 and 65 years, and the elderly (>65) had answers in all categories. They gather with friends very often or they never gather with friends in the centre. Gender does not play an important role, while residency can be considered as an interesting fact for some people who occasionally gather with friends in the city centre. In fact, almost all respondents in this category are residents of the city centre. An explanation for this can be found in the fact that they prefer to receive friends at home. Also the fact that almost all respondents that never gather with friends

are not residents of the city centre, explains a lot about purpose of their coming in city centre. They come to the centre for other needs (e.g., coming to an important institution).

How often do you hang out with friends in the city center?

	Rez	No R	Rez	No R	Rez	No R	Rez	No R	Rez	No R	Rez	No R	Total
	Male		Female		Male		Female		Male		Female		
	(<25)				(26-65)				(>65)				Total
1 Never	0%	0%	0%	0%	0%	20%	0%	20%	0%	67%	0%	0%	7%
2 Rarely	0%	0%	0%	0%	20%	40%	20%	0%	0%	0%	0%	50%	10%
3 Occasionally	0%	0%	33%	0%	20%	0%	40%	0%	43%	33%	33%	25%	20%
4 Often	33%	43%	33%	50%	20%	20%	0%	60%	29%	0%	0%	0%	25%
5 Very often	67%	57%	33%	50%	40%	20%	40%	20%	29%	0%	67%	25%	38%
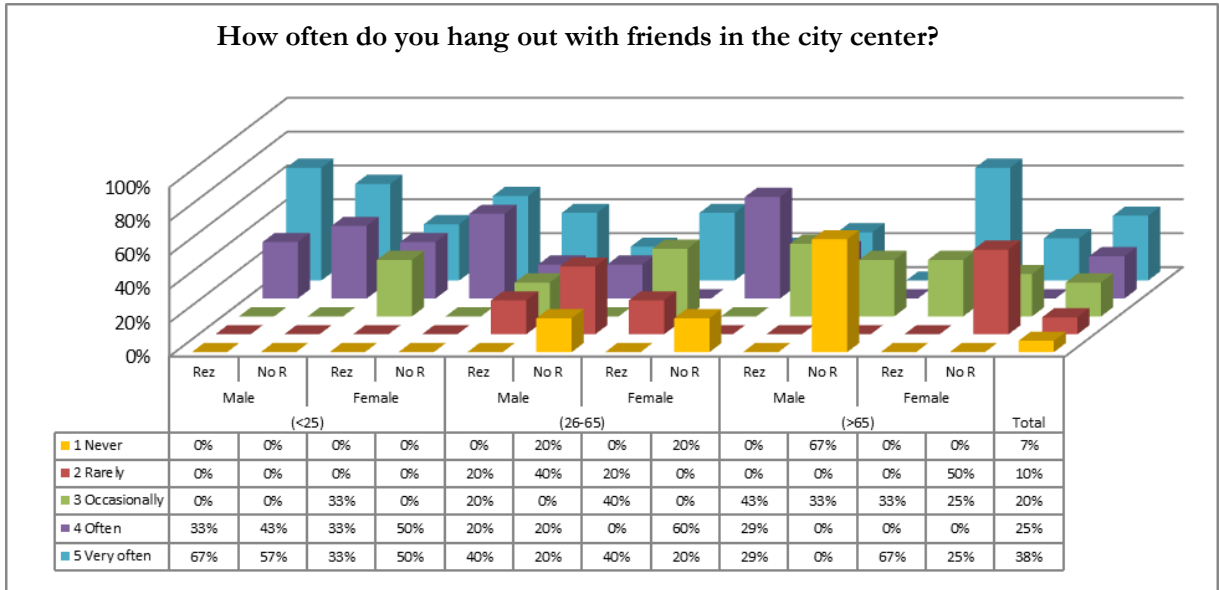
Figure 5-2 Perception on gathering with friends in the city centre

5.1.3.   The frequency of visiting

According to the Figure 5-3 the highest percentage of people often or very often visit the city centre. Among these, the greatest percentage is between 25 and 65 years because all respondents in this age group are in the high category. Still, a certain percentage of people older than 25 years visit the city centre on a medium level basis. The reasons for their visits are usually related to necessity, for example working in this part of city. A certain number of people who rarely to occasionally visit the city centre listed shopping and walking as reasons for the visit. People who often or very often visit the centre in addition to the same reasons cited and hanging out with friends as one of the reasons for visiting the centre. However the most common response for all respondents, regardless of the frequency of arrival were:

"I work in city centre", "I often visit the centre because everything is located in the vicinity", "I'm here often for work and house "," Often I am here because I live nearby", "All important facilities are nearby″, among others similar answers.

Finally, according to the replies it may be concluded that a large number of people visit the city centre because it is a necessity, e.g., job, public institutions or residency in this part of city. Far fewer people listed just walking or hanging out with friends as the primary reason for the visit. Even those who visit the centre exclusively for these reasons do it because they live nearby and it is the closest place to gather with friends. Some have pointed out that other parts of city are even worse, indicating that regardless of the reasons of visiting the centre (obligation or pleasure) it is a part of the city that provides an opportunity for both. Through some answers it is possible to conclude that some people avoid visiting centre if they do not need it because there is no vegetation, and prefer to go with friends in nature.

How often do you visit the city center?

	Male (<25)		Female (<25)		Male (26-65)		Female (26-65)		Male (>65)		Female (>65)		Total
	Rez	No R	Rez	No R	Rez	No R	Rez	No R	Rez	No R	Rez	No R	
1 Almost never	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
2 Rarely	0%	0%	0%	0%	0%	40%	0%	0%	0%	67%	0%	25%	8%
3 Medium	0%	0%	0%	0%	20%	0%	20%	20%	0%	33%	0%	25%	8%
4 Often	33%	43%	50%	50%	40%	40%	20%	80%	86%	0%	50%	0%	45%
5 Very often	67%	57%	50%	50%	40%	20%	60%	0%	14%	0%	50%	50%	38%
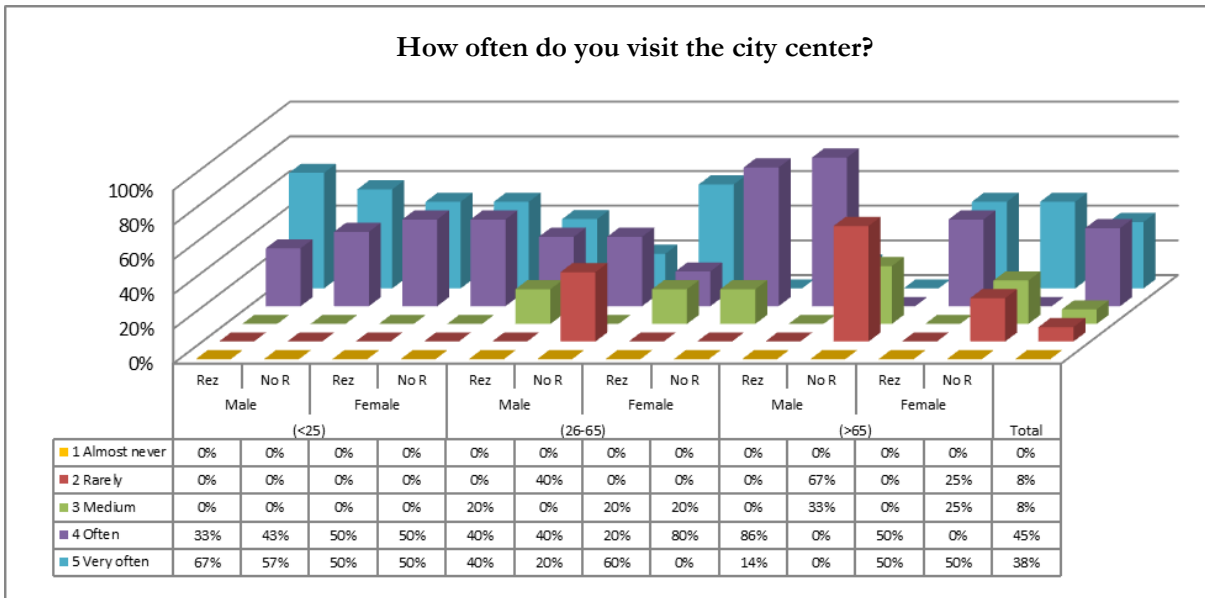
Figure 5-3 Perception on frequency of visiting

5.1.4. Frequency of activities on the street

According to Figure 5-4 respondents consider that there is enough or plenty of different activities in the city centre, such as playing children, walking people and others. Therefore, the overall perception of these people is classified as high. A very small percentage of respondents believe that these activities are a medium and not enough. Respondents who share this sentiment are mostly younger than 65 years.

How do you rate people engagment in activity on the streets (walking, eating, games...)?

	Male (<25)		Female (<25)		Male (26-65)		Female (26-65)		Male (>65)		Female (>65)		Total
	Rez	No R	Rez	No R	Rez	No R	Rez	No R	Rez	No R	Rez	No R	
1 Hardly any	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
2 Not enough	0%	0%	33%	0%	0%	0%	0%	20%	0%	0%	0%	0%	5%
3 Medium	0%	14%	0%	25%	0%	60%	20%	20%	0%	0%	17%	0%	13%
4 Enough	0%	43%	17%	50%	20%	20%	40%	20%	71%	0%	33%	75%	35%
5 Plenty	100%	43%	50%	25%	80%	20%	40%	40%	29%	100%	50%	25%	47%
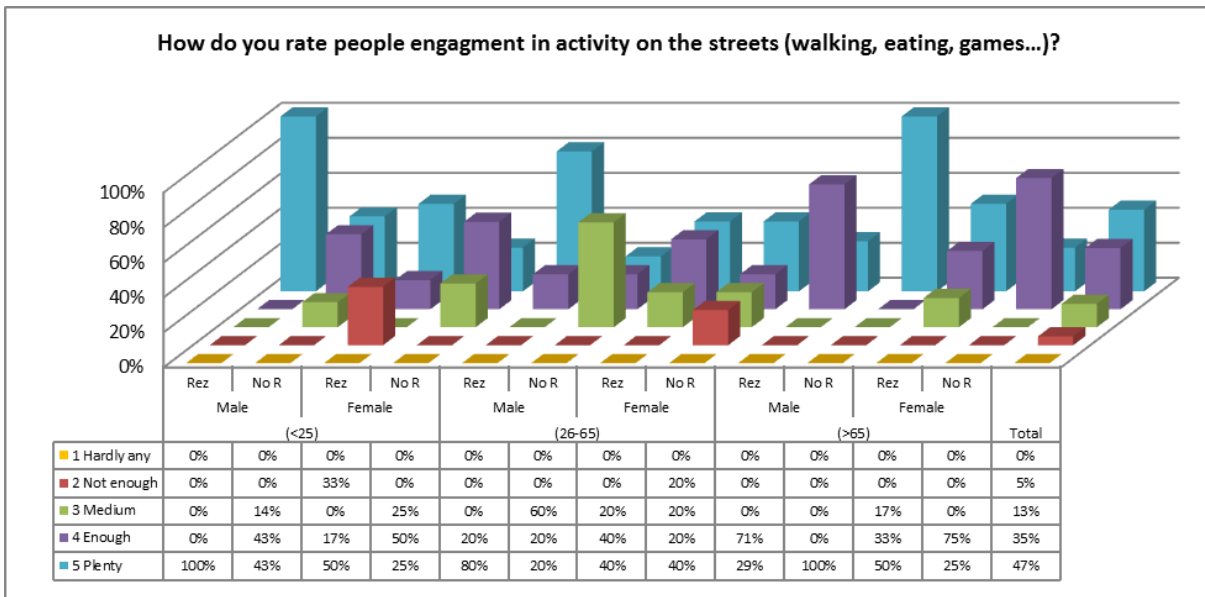
Figure 5-4 Perception on activities in city centre

5.1.5. The impact of activities on behaviour

According to Figure 5-5 largest numbers of respondents believe that the activities that take place in the city centre encourage or greatly encourage them to participate in those activities and hang out more with people. A somewhat smaller number of respondents believe that these activities have medium impact on them. This could be viewed from two angles. People who visit the city center are visiting it for personal purposes and not because of what is happening there, and they would certainly come to the center of the city regardless of the actions of other people. They are indifferent to the activities of other people. Another version might be that existing activities are not inspiring enough to make them more encouraged to participate in them.

How does the activity of other people on the stres encourages your interaction and use of street?

	Male (<25)		Female (<25)		Male (26-65)		Female (26-65)		Male (>65)		Female (>65)		Total
	Rez	No R	Rez	No R	Rez	No R	Rez	No R	Rez	No R	Rez	No R	
1 Very discourage	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
2 Discourage	0%	0%	0%	0%	0%	20%	0%	40%	0%	33%	0%	0%	7%
3 Medium	0%	43%	50%	25%	40%	40%	40%	0%	0%	67%	67%	100%	38%
4 Encourage	33%	29%	33%	50%	0%	40%	40%	60%	71%	0%	17%	0%	33%
5 Very encourage	67%	29%	17%	25%	60%	0%	20%	0%	29%	0%	17%	0%	22%

Figure 5-5 Perception on impact on behaviour

5.1.6. The diversity of people

Figure 5-6 shows people's perception of the diversity of people in the streets. Regardless of gender, age and residence, most respondents consider that diversity of people in the centre is high. A very small percentage of people who believe that a diversity of people is medium are people aged between 25 and 65 years. The highest percentage of people who believe that a diversity of people is very large are people aged between 15 and 25 years.

How would you assess the diversity of people on the streets, taking into account age, gender..?

	Rez	No R	Rez	No R	Rez	No R	Rez	No R	Rez	No R	Rez	No R	
	Male		Female		Male		Female		Male		Female		
	(<25)				(26-65)				(>65)				Total
■ 1 Not diverse at all	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
■ 2 Very little diverse	0%	0%	0%	0%	0%	0%	0%	20%	0%	0%	0%	0%	2%
■ 3 Medium	0%	0%	0%	0%	20%	40%	20%	0%	0%	33%	17%	0%	10%
■ 4 Quite diverse	33%	14%	33%	50%	20%	0%	40%	60%	57%	33%	67%	50%	38%
■ 5 Very diverse	67%	86%	67%	50%	60%	60%	40%	20%	43%	33%	17%	50%	50%
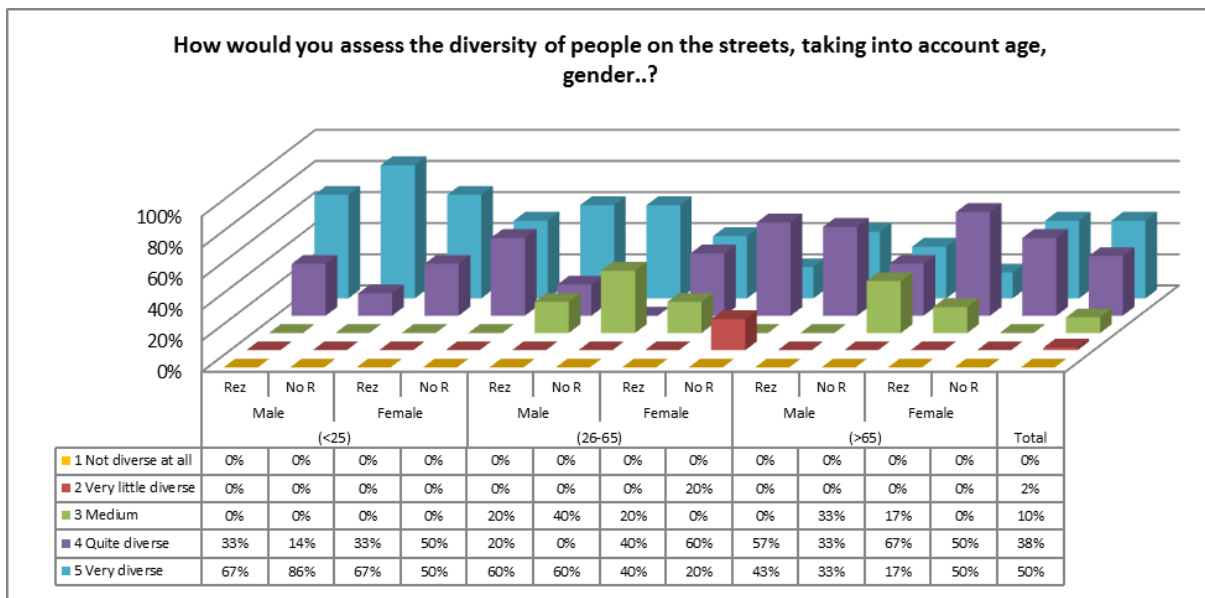
Figure 5-6 Perception on diversity of people in city centre

5.1.7. Welcoming

Figure 5-7 shows that people feel welcome in the city centre. All respondents feel a quite welcome or very welcome in the city centre. Some of their reasons are related to the presence of friends and a pleasant feeling:

"I am sociable and positive person, so everyone feels good", "Because people", "I meet friends", "Pleasant feeling", "I had no trouble here ever ", etc. The other reasons are mostly associated with a feeling of good knowledge of the location, and some of the answers were:" I feel very welcome since I was there my whole life", "Because I live here "," This is my neighbourhood, I feel the safety and peace", "I grew up here", "Because I live here 15 years", and so on.

According to these replies it is possible to conclude that people feel welcome because they feel comfortable and safe in the presence of friends and people in general. Knowledge of the location has a huge impact due to years of residence or visiting this part of city. The city centre is familiar to people and they feel at home.

Still 10 percent of respondents have a medium feeling about sense of welcome in the city centre. Although the percentage of these respondents is more or less negligible compared to the total number of people, it is relevant to point out their reasons why they considered the centre of the city not so welcoming. Male, age 25-65 years, says: "City centre lost identity, and therefore the continuity ... Shops are constantly open and close ... No serious place for serious people, e.g. target group of people age more than 35 years." All respondents in the middle category of people are between 25 and 65 years. Therefore, a number of people feel that they are not welcome in the centre because the content that currently exists in the centre does not meet their needs and does not offer something for which they would like to come to this part of city.

Do you feel welcome in the city center?

	Rez	No R	Rez	No R	Rez	No R	Rez	No R	Rez	No R	Rez	No R	Total
	Male		Female		Male		Female		Male		Female		
	(<25)				(26-65)				(>65)				
1 Very unwelcome	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
2 Unwelcome	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
3 Medium	0%	0%	0%	0%	20%	40%	20%	40%	0%	0%	0%	0%	10%
4 Quite a welcome	0%	29%	33%	0%	60%	20%	40%	20%	14%	67%	17%	25%	27%
5 Very welcome	100%	71%	67%	100%	20%	40%	40%	40%	86%	33%	83%	75%	63%
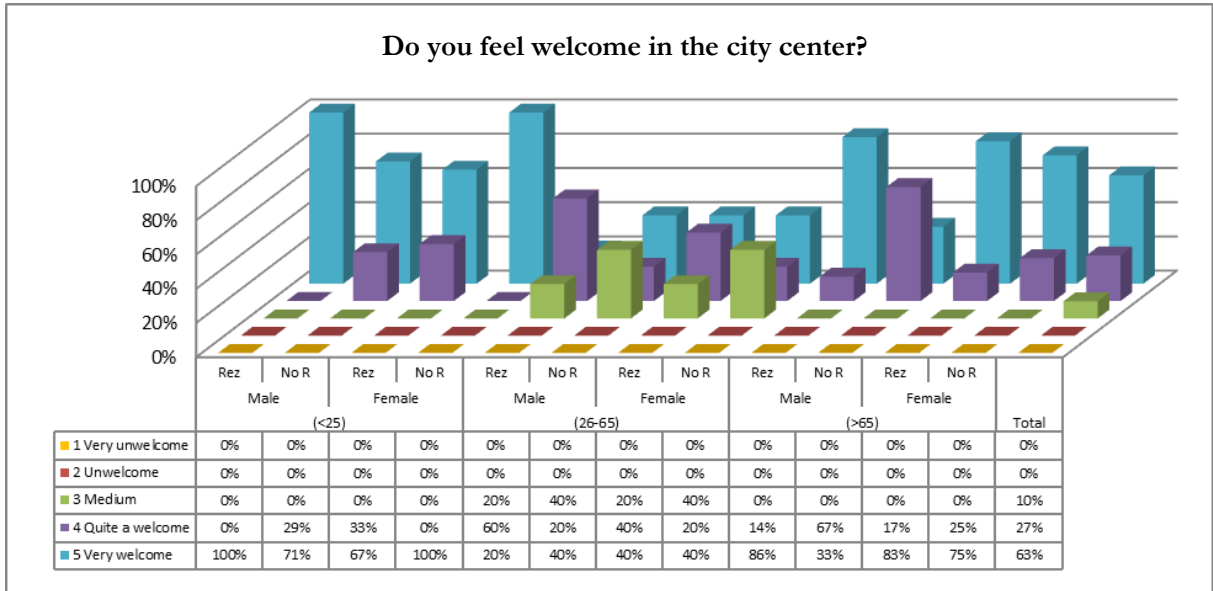
Figure 5-7 Perception on welcome

5.1.8.   Atmosphere

According to Figure 5-8 most people rated overall atmosphere in the city centre as good or very good. Therefore, the perception of people can be categorized as High. Some of the answers are: "It is lively"., "I love the rush and positive atmosphere," Various friends"... So, most of the people interpreted the atmosphere in connection to human presence and positive feelings. A man over 65 years of age stated that the reasons for a good atmosphere: "All important institutions are there". So the atmosphere in the city centre is perceived by people in different ways depending on the reason why they are visiting the centre. However, a number of people consider that the atmosphere in the centre is medium, and for example one of the statements is: "The atmosphere is average", or a woman aged 25 to 65 years, a resident of the city centre asserts: "Missing city spirit, the spirit is provincial". So part of people think that the atmosphere in the city is not good because of the characteristics of people who spend time there. Answers to this question could be in the social structure, but it is issue of macro-scale. In this case it is considered to be a personal experience of woman who said this statement. Gender, age and residency may play a role only at the personal level, while the overall percentage does not reflect it.
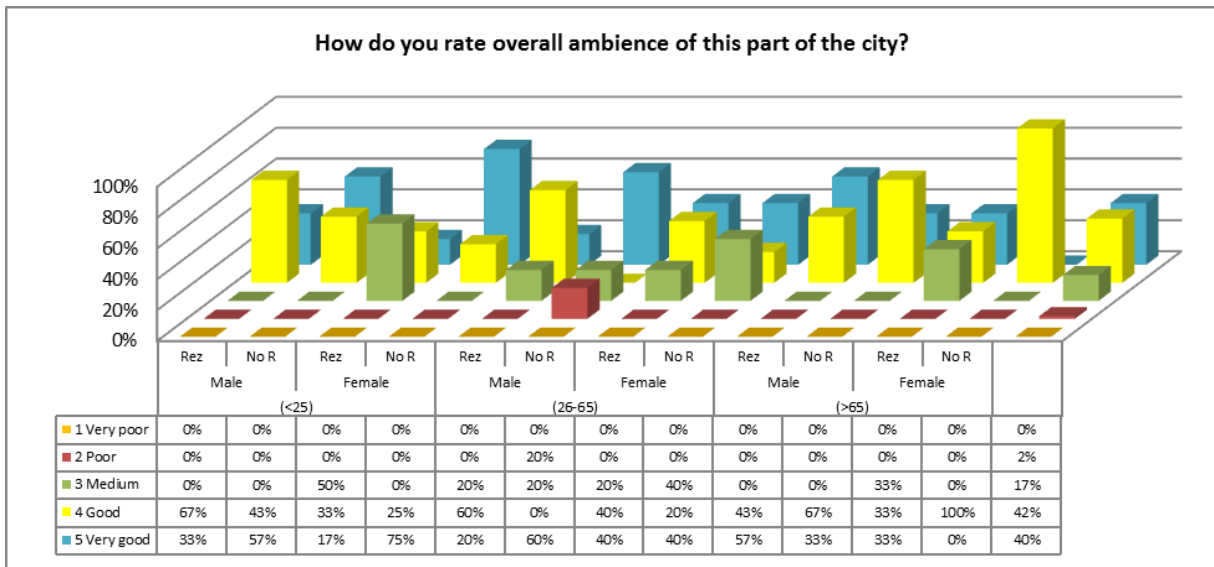
Figure 5-8 Perception on atmosphere in the city centre

5.2. Subjective perception of street environment

This section presents issues related to the subjective perceptions in relation to domains and indicators concerning the street environment. Some of the questions were related to the entire domain, while some issues were related to the individual indicators. Depending on additional explanations of respondents, these questions about the indicators may relate to different domains of street environments.

5.2.1. Safety

Figure 5-9 represents the people's perception on safety in relation to their personal reasons. The highest percentage of people said that they feel safe or very safe. Therefore, the overall perception of the people can be categorized as high. The most common reasons why people feel safe was the presence of a large number of people who are always on the streets, the presence of friends, a good knowledge of the city centre, or because they live in this part of city. A male aged 25 to 65 years, said: "I'm part of it".

Yet 20% of the population believes that the city centre is not enough or that is the moderately safe. "Lighting and empty streets make me insecure," said a woman aged between 25 and 65 years. "Blown street lamps which have not been changed" is the explanation of a male aged between 25 and 65 years old, which considered safety in city centre as average. A female between 25 and 65 years believes that the streets are unsafe: "Because of the general situation in the society". People who believe that the city centre is mildly safe are usually guided by a lack of police and the presence of "unsavoury people", which is actually a consequence of the lack of physical presence of the police. A woman aged 25 to 65 years emphasizes: "There is no police on the streets," "Lack of police and presence of maniacs" (Male, 26-65 years). Girl 15-25 years stated the reason why she feels insecure: "Bearing in mind these shootings that have occurred recently", while male aged 25-65 years, said: "Drunk people are hanging around". Thus, it can be concluded that the perception of safety or unsafe is most affected by the presence of people (in a good or bad context).

There are almost no respondents who indicated a physical reason for feeling unsafe, except for one woman who said absence of street lighting. Those streets are quite attractive due to the bars, where a large number of people in the evening drinking alcohol. Therefore, sometimes people under the influence of alcohol cause fights, or even worse, shootings. The lack of police on the streets is actually the cause of these undesirable events, because of this there is a certain number of people in the city do not feel

completely safe. Nobody of over 65 years feels unsafe. According to the response for those who feel mildly safe, experiences related to nightlife affect their perception. Older people do not spend during the late night hours on the streets, and therefore do not have this feeling, as opposed to individuals in younger age groups. In some cases, residency is an element that people cited as a reason why they feel safe.

How safe do you feel in the city center?

	Male (<25)		Female (<25)		Male (26-65)		Female (26-65)		Male (>65)		Female (>65)		Total
	Rez	No R	Rez	No R	Rez	No R	Rez	No R	Rez	No R	Rez	No R	
1 Very unsafe	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
2 Unsafe	0%	14%	0%	0%	0%	0%	0%	20%	0%	0%	0%	0%	3%
3 Medium	33%	0%	50%	25%	40%	20%	40%	0%	0%	0%	0%	0%	17%
4 Safe	0%	14%	33%	25%	60%	40%	40%	60%	71%	100%	33%	25%	42%
5 Very safe	67%	71%	17%	50%	0%	40%	20%	20%	29%	0%	67%	75%	38%
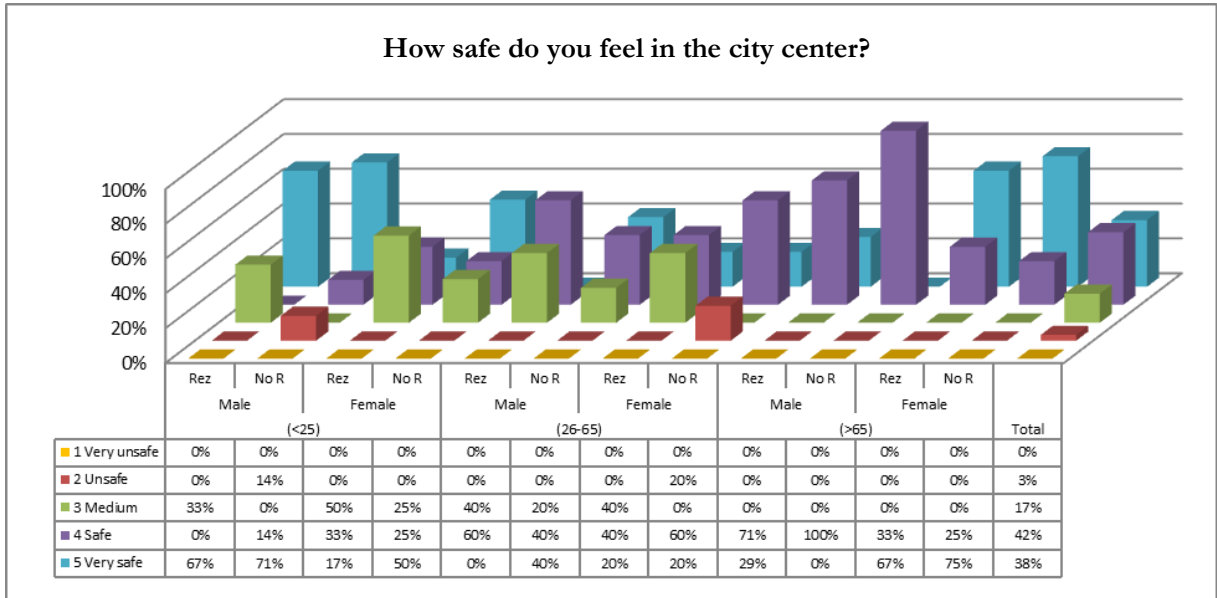
Figure 5-9 Perception on safety

5.2.2. Building condition

Figure 5-10 shows people's perception on building conditions in the city centre. According to the data, the perception of people is classified as medium to high. People generally believe that the building conditions in the city centre are good or medium. The most common reason for medium ranking was that buildings are quite old and they could benefit from renovation.

How would you rate the overall physical condition of the buildings in the city center?

	Male (<25)		Female (<25)		Male (26-65)		Female (26-65)		Male (>65)		Female (>65)		Total
	Rez	No R	Rez	No R	Rez	No R	Rez	No R	Rez	No R	Rez	No R	
1 Very poor	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
2 Poor	0%	14%	0%	0%	0%	0%	20%	0%	0%	67%	0%	25%	8%
3 Medium	67%	43%	50%	25%	40%	60%	20%	20%	57%	33%	83%	0%	43%
4 Good	33%	43%	17%	75%	40%	40%	60%	80%	29%	0%	17%	75%	42%
5 Very good	0%	0%	33%	0%	20%	0%	0%	0%	14%	0%	0%	0%	7%
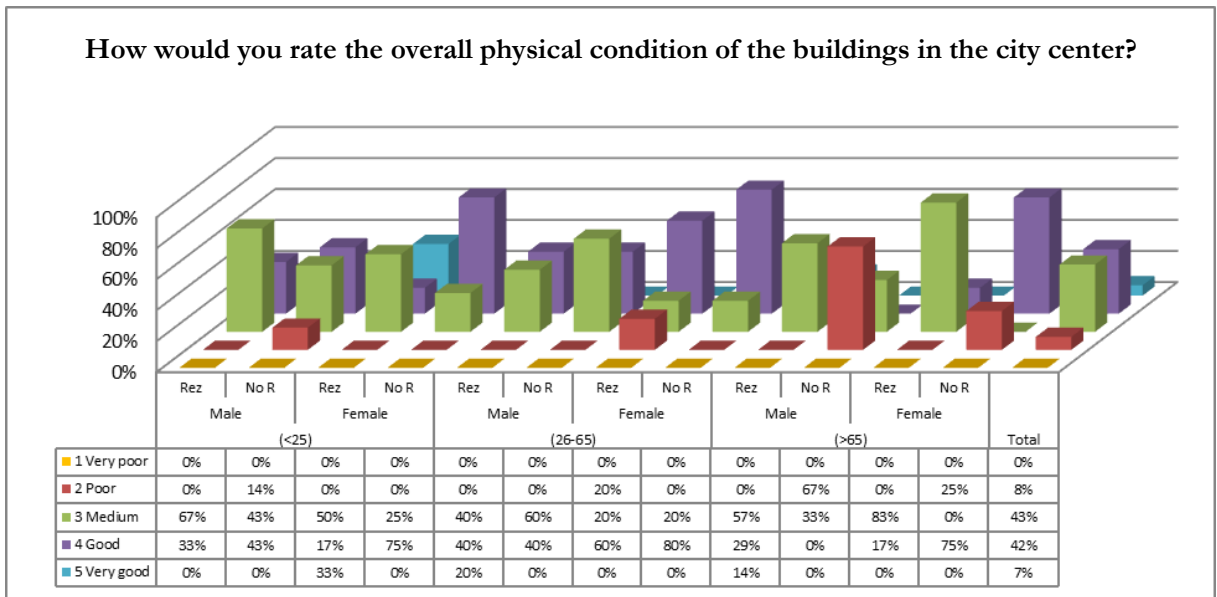
Figure 5-10 Perception on building condition

5.2.3. Pathway

Figure 5-11 shows that the perception of people with regards to the sidewalk condition in the city centre is quite diverse. However, the highest percentage of people believes that the condition of sidewalks is medium. The majority of respondents in this category said that the streets should be cleaner. Also, one respondent in this category, a male between 25 and 65 years recalled: "Before, this street (Zmaj Jovina) had a nice street pavement. Now it's also nice, but before it was nicer". Although this fact is associated more with aesthetics than with the condition, it can be considered as a very important reference that people relied upon the experience of the current state of the street. Almost the same number of respondents considered that street condition is good. Therefore, the overall conclusion is the perception of people in the category of medium to high.

How would you rate the overall physical condition of the sidewalks in the city center?

	Male (<25)		Female (<25)		Male (26-65)		Female (26-65)		Male (>65)		Female (>65)		Total
	Rez	No R	Rez	No R	Rez	No R	Rez	No R	Rez	No R	Rez	No R	
1 Very poor	0%	0%	0%	0%	0%	0%	0%	0%	0%	33%	0%	0%	2%
2 Poor	0%	43%	0%	25%	40%	0%	20%	0%	0%	67%	0%	0%	15%
3 Medium	33%	29%	50%	0%	60%	40%	40%	60%	43%	0%	83%	25%	42%
4 Good	67%	29%	33%	75%	0%	60%	40%	20%	57%	0%	17%	75%	38%
5 Very good	0%	0%	17%	0%	0%	0%	0%	20%	0%	0%	0%	0%	3%
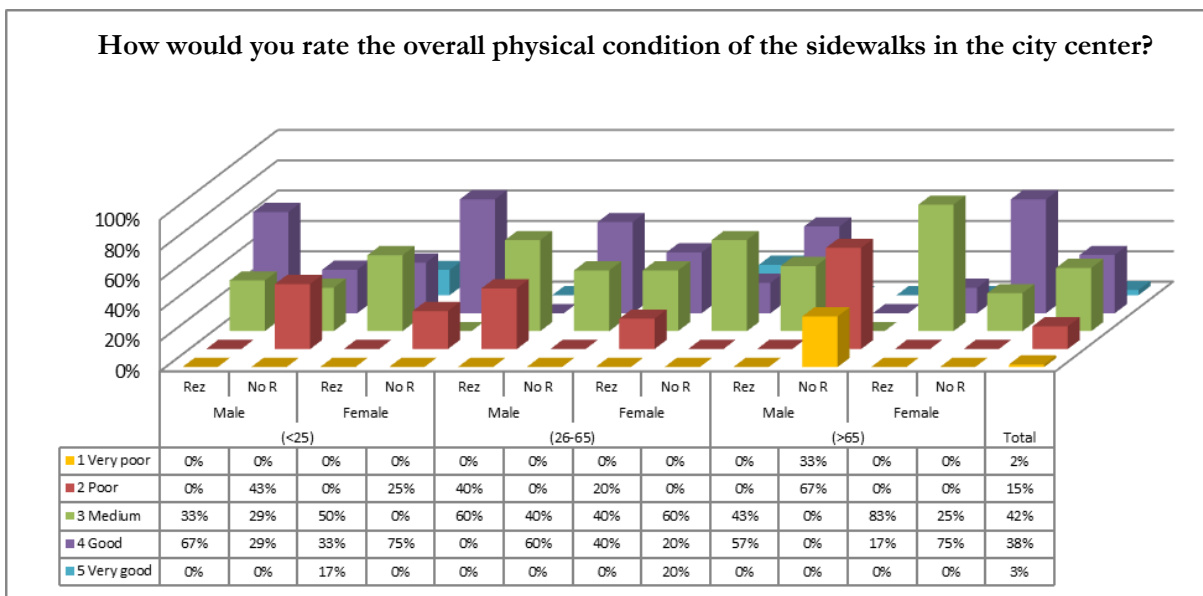
Figure 5-11 Perception on sidewalk condition

5.2.4. Greenery

According to Figure 5-12 users of street have a divided opinion when it comes to the presence of greenery on the streets. The largest proportions of the population who believe that there is enough greenery in the streets are people older than 65 years. People who believe that there is not enough greenery in the streets are younger than 25 years and people between 25 and 65 years. The final conclusion is that almost half of the total people considered there to be a high level of greenery on the streets. People older than 65 years are most satisfied with the amount of greenery on the streets; almost none of these users assessed the level of greenery with a score lower than 4. Residence and gender do not play an important role in perception of greenery on the streets. The difference is seen in relation to age of users.

Do you think that this part of the city has enough greenery and green spaces?

	Rez	No R	Rez	No R	Rez	No R	Rez	No R	Rez	No R	Rez	No R	Total
	Male		Female		Male		Female		Male		Female		
	(<25)				(26-65)				(>65)				Total
1 Hardly any	0%	0%	17%	0%	20%	20%	0%	0%	0%	0%	0%	0%	5%
2 Not enough	0%	43%	33%	50%	20%	40%	40%	20%	0%	0%	0%	25%	23%
3 Medium	67%	14%	33%	25%	20%	40%	20%	60%	14%	0%	0%	0%	23%
4 Enough	33%	43%	17%	25%	40%	0%	20%	20%	71%	67%	83%	75%	42%
5 Plenty	0%	0%	0%	0%	0%	0%	20%	0%	14%	33%	17%	0%	7%
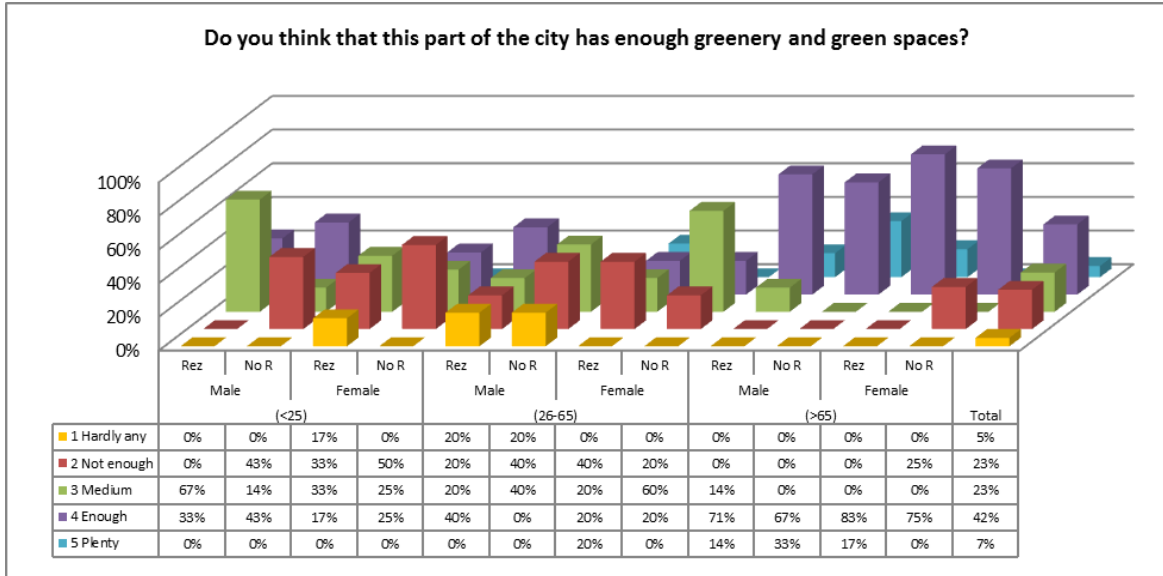
Figure 5-12 Perception of greenery and green space according to age and gender and residency

5.2.5. Benches

Figure 5-13 shows people's perception of the amount of available public seats on the street. According to available data, people are quite diverse rated the availability of seats in the center. People older than 65 years are most satisfied with the amount of available public seats. None of the users from this age group evaluated the level of benches with a score less than 4. People from the other two age groups have quite similar perceptions. The largest number of them considered the level benches to be medium to high. Neither residence nor gender plays a role in individual perception.

How do you feel about amount of places to sit on the streets (benches, chairs)?

	Rez	No R	Rez	No R	Rez	No R	Rez	No R	Rez	No R	Rez	No R	Total
	Male		Female		Male		Female		Male		Female		
	(<25)				(26-65)				(>65)				Total
1 Hardly any	0%	0%	17%	0%	0%	0%	0%	0%	0%	0%	0%	0%	2%
2 Not enough	0%	14%	17%	0%	20%	40%	20%	0%	0%	0%	0%	0%	10%
3 Medium	67%	43%	17%	0%	80%	20%	40%	40%	0%	0%	0%	0%	25%
4 Enough	33%	43%	50%	100%	0%	40%	40%	60%	71%	67%	100%	100%	58%
5 Plenty	0%	0%	0%	0%	0%	0%	0%	0%	29%	33%	0%	0%	5%
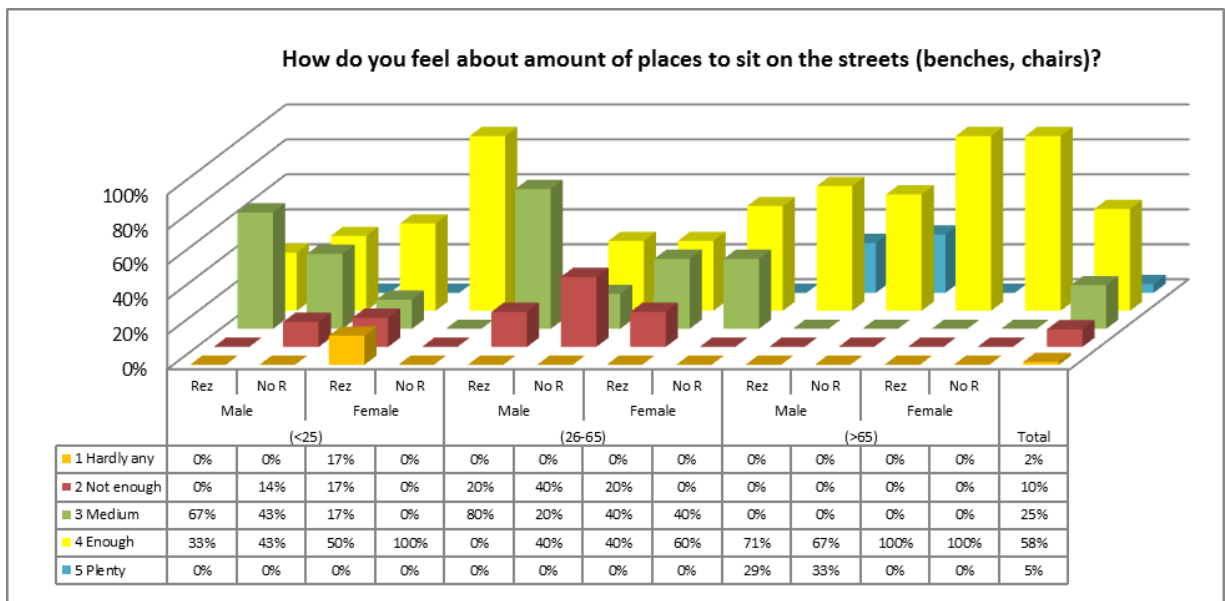
Figure 5-13 Perception on availability of benches

5.2.6. Bench position

Figure 5-14 shows the perception on the position of the existing benches in relation to the shade, lights, location etc. According to the data, most people assessed the position of benches as medium and sufficient. 12% of people believe that the position of searing is very good and the largest number of this group consists of people older than 65 years. The overall data suggest that the overall score is in the category high. However, if we take age into account, then the perception of people is from medium to high. The greatest number of people between 15 and 65 years considered that the position of benches is medium. Girl (15-25) points out: "I often avoid sitting on the benches near the cathedral during the summer, because there is no shade. Usually I go to a nearby park with my friends." Thus, although there is access to benches, people will avoid using this possibility if it is not comfortable. Almost all people older than 65 years are rated position of benches with high level. Woman (> 65 years) says: "I like to sit on this bench, because I can watch people". The difference in perception is due to the fact that people younger than 65 years much prefer environmental comfort. For the elderly it does not play an important role, while the opportunity to have a good vantage point of the street life is very important for them.

How would you assess the locations of benches (shade during the day, night lighting, etc..)?

| | Male (<25) | | Female (<25) | | Male (26-65) | | Female (26-65) | | Male (>65) | | Female (>65) | | Total |
	Rez	No R	Rez	No R	Rez	No R	Rez	No R	Rez	No R	Rez	No R	
1 Very bad	0%	0%	17%	0%	0%	0%	0%	0%	0%	0%	0%	0%	2%
2 Bad	33%	0%	0%	0%	20%	0%	20%	0%	0%	33%	0%	0%	7%
3 Medium	67%	57%	83%	25%	60%	40%	40%	60%	0%	0%	0%	25%	38%
4 Good	0%	43%	0%	75%	20%	60%	20%	20%	57%	67%	83%	50%	42%
5 Very good	0%	0%	0%	0%	0%	0%	20%	20%	43%	0%	17%	25%	12%
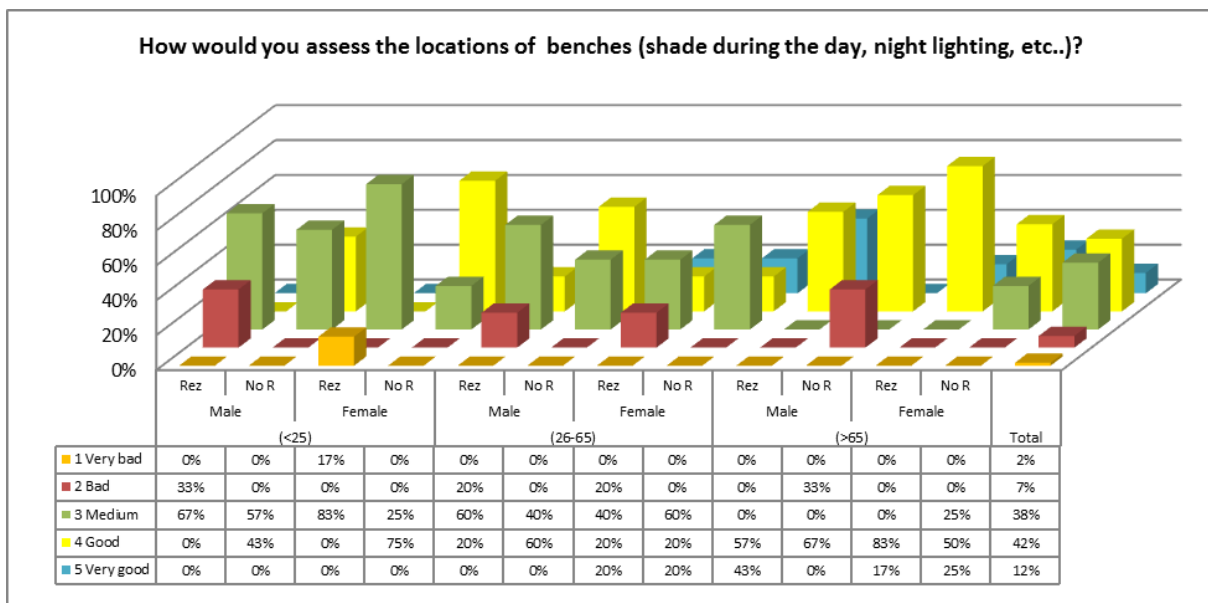
Figure 5-14 Perception on bench position

5.2.7. Comfort

Figure 5-15 shows that almost all respondents feel comfortable or very comfortable in the city centre. The most frequent reasons were based on friends and the presence of people. "I have a pleasant society", "Because people feel comfortable", "It is comfortable to me because I'm seeing guys in this part of the city" are some of the replies of the respondents.

Also, there are answers concerning personal experiences. "I feel comfortable because I love this place. I have a lot of memories", said a man aged 25 to 65 years, who is not a resident of city centre. Similarly, a woman of 25-65 years old who is also not a resident of city centre: "I feel part of it." These answers suggest that people who are not only residents of the city centre have certain memories that cause positive association with the city centre that makes them feel comfortable to be there. However, a number of people feel comfortable because they are accustomed to those places, and have not had a bad

experience that changed their opinion. As stated by one respondent: "I have no reason to the contrary sentiment. I am accustomed to this place".

Very few people have mentioned some of the physical characteristics of the street as the elements for which they feel comfortable. One of the rare replies was: "Well, I feel comfortable because it's clean here". An interesting response was: "I feel comfortable because here is the greatest power of the city". So, some people feel comfortable in the centre for a variety of opportunities that centres provide.

How comfortable do you feel walking through the streets of the city center?

	<25				26-65				>65				Total
	Male		Female		Male		Female		Male		Female		
	Rez	No R	Rez	No R	Rez	No R	Rez	No R	Rez	No R	Rez	No R	
1 Very uncomfortable	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
2 Uncomfortable	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
3 Medium	33%	0%	33%	0%	0%	0%	0%	0%	0%	0%	0%	0%	5%
4 Comfortable	33%	14%	50%	0%	100%	80%	100%	60%	57%	100%	50%	50%	57%
5 Very comfortable	33%	86%	17%	100%	0%	20%	0%	40%	43%	0%	50%	50%	38%

Figure 5-15 Perception on comfort in city centre

5.2.8. Street equipment

According to Figure 5-16 is possible to see a variety of responses to the presence of street equipment. A very clear difference is seen in the responses of people older than 65 years. Their responses are usually 'enough' a slightly smaller number of 'plenty'. Therefore, the overall level of their response is high. However, people younger than 65 years have divided opinion on the existence of street furniture. 20% of people in these two categories believe that there is 'not enough' street equipment, 25% think it has 'medium' amount and 15% of people feel that there is 'enough' street furniture. According to final results, most of the replies are medium to high level. However, considering the current similarity of responses related to the age of people, perception on the availability of street equipment can be divided into two categories. Low to medium level for people younger than 65 years old and high for people older than 65 years old. Gender and residency does not play a role in people's perception. The largest number of replies refers to availability of bins and most people think that there should be more bins. A male aged between 15 and 25 years said: "Sometimes, I have nowhere to leave my bike in the city centre". Lack of parking for bikes is closely related to accessibility.

What do you think about the layout of streets? Is there enough trash cans, lamps, basket flowers, pillars?

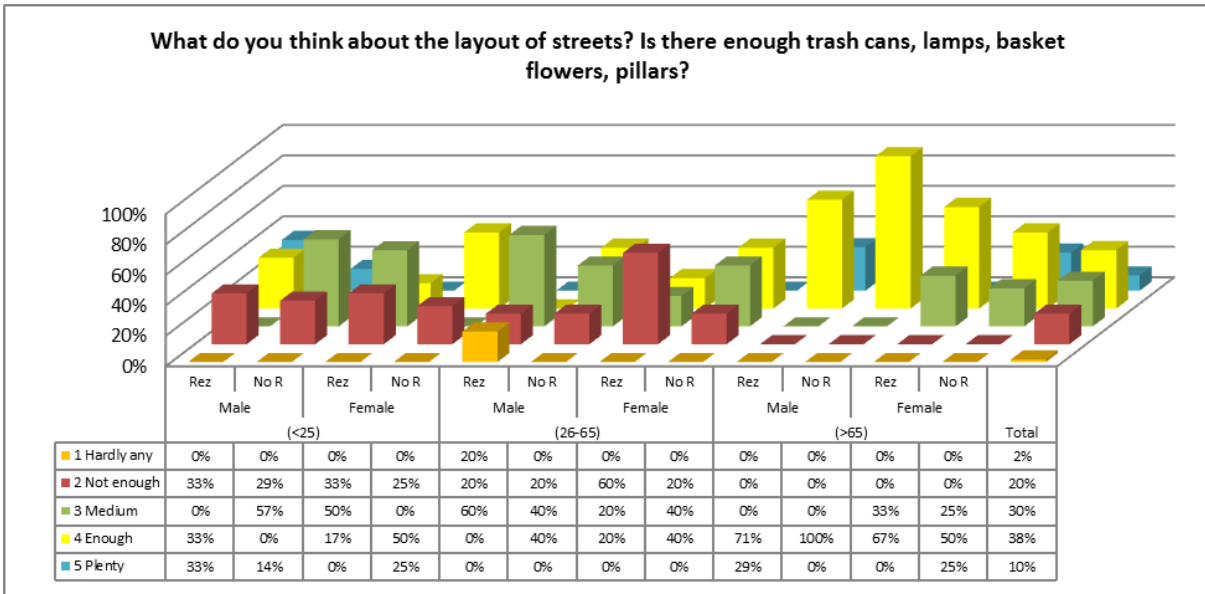|	Rez	No R	Rez	No R	Rez	No R	Rez	No R	Rez	No R	Rez	No R	Total
	Male		Female		Male		Female		Male		Female		
	(<25)				(26-65)				(>65)				Total
1 Hardly any	0%	0%	0%	0%	20%	0%	0%	0%	0%	0%	0%	0%	2%
2 Not enough	33%	29%	33%	25%	20%	20%	60%	20%	0%	0%	0%	0%	20%
3 Medium	0%	57%	50%	0%	60%	40%	20%	40%	0%	0%	33%	25%	30%
4 Enough	33%	0%	17%	50%	0%	40%	20%	40%	71%	100%	67%	50%	38%
5 Plenty	33%	14%	0%	25%	0%	0%	0%	0%	29%	0%	0%	25%	10%

Figure 5-16 Perception on availability of street equipment

5.2.9. Street performances

Figure 5-17 refers to people's perception of the occurrence and frequency of outdoor events such as outdoor sales, street festivals, street performances and so on. According to data, almost all users believe that the events are frequent and almost on a daily basis. Regardless of age, gender and residence, the perception of people is in the category high. A female aged between 25 to 65 years, points out: "There's always something going on. Just yesterday a group of people in national dance costumes walked through the street", while male 15 to 25 years, says: "It is never boring". A woman older than 65 years remembers that street events always were present in the city centre: "Some fairs have always been here".

Rate this block for frequency of outdoor events, such are block parties, outdoor salles, street performers, and other outdoor events?

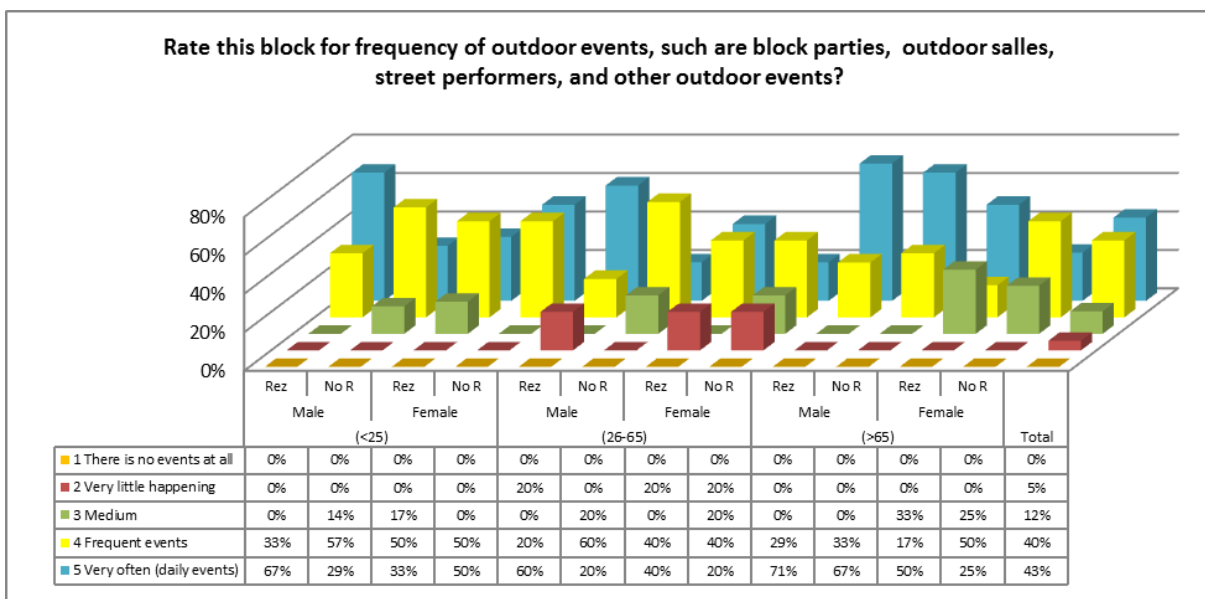|	Rez	No R	Rez	No R	Rez	No R	Rez	No R	Rez	No R	Rez	No R	Total
	Male		Female		Male		Female		Male		Female		
	(<25)				(26-65)				(>65)				Total
1 There is no events at all	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
2 Very little happening	0%	0%	0%	0%	20%	0%	20%	20%	0%	0%	0%	0%	5%
3 Medium	0%	14%	17%	0%	0%	20%	0%	20%	0%	0%	33%	25%	12%
4 Frequent events	33%	57%	50%	50%	20%	60%	40%	40%	29%	33%	17%	50%	40%
5 Very often (daily events)	67%	29%	33%	50%	60%	20%	40%	20%	71%	67%	50%	25%	43%

Figure 5-17 Perception on street events

5.2.10. Community places

More than half of people consider that within the city centre there are plenty of places for gathering in the streets, in terms of bars and restaurants. While a somewhat smaller number declares that there are enough of these places. The overall answers of respondents are classified into the category of high, regardless of gender, age and residency. (Figure 5-18)
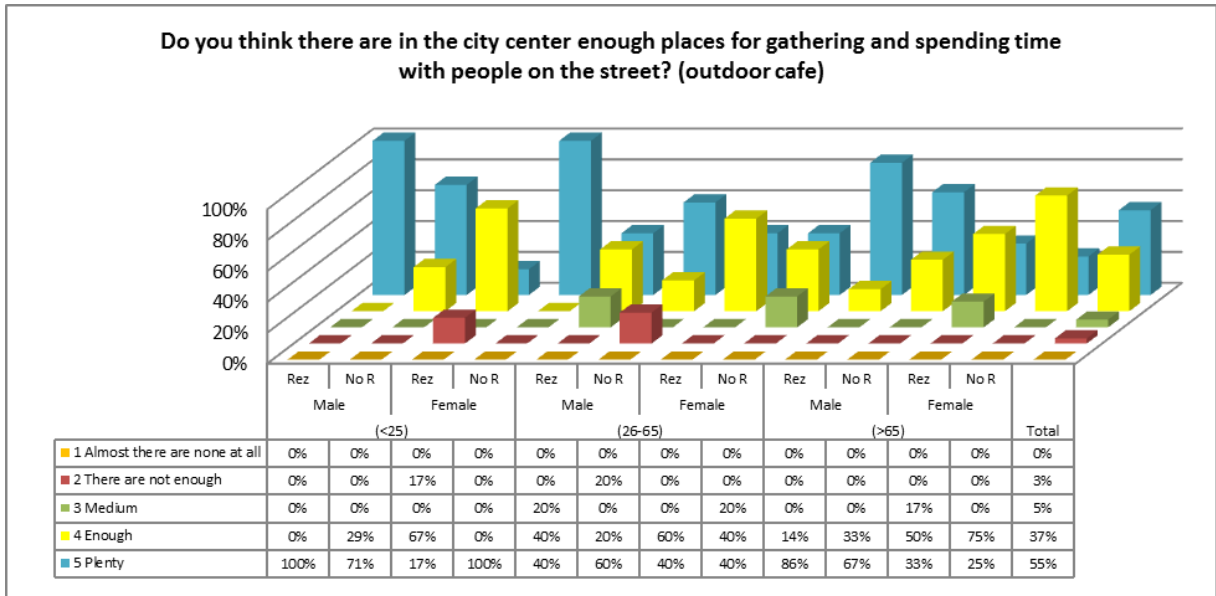

	Rez	No R	Rez	No R	Rez	No R	Rez	No R	Rez	No R	Rez	No R	
	Male		Female		Male		Female		Male		Female		
	(<25)				(26-65)				(>65)				Total
1 Almost there are none at all	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
2 There are not enough	0%	0%	17%	0%	0%	20%	0%	0%	0%	0%	0%	0%	3%
3 Medium	0%	0%	0%	0%	20%	0%	0%	20%	0%	0%	17%	0%	5%
4 Enough	0%	29%	67%	0%	40%	20%	60%	40%	14%	33%	50%	75%	37%
5 Plenty	100%	71%	17%	100%	40%	60%	40%	40%	86%	67%	33%	25%	55%

Figure 5-18 Perception on community places

5.2.11. Diversity of facilities

According to Figure 5-19, the overall perception of the variety of shops in the city centre is in the high category. However there are some variations in relation to age, gender and residency. The largest percentages of people who think that the services are very diverse are people between 15 and 25 years. The answers of people between 25 and 65 years are from a medium to high level. A very small percentage of people in this age category believe that the diversity of services is not enough. The highest percentage of people who believe that the diversity of services insufficient are people older than 65 years, females and residents of this neighbourhood. A female older than 65 years, says: "There are not enough daily shops. I have very far to walk to buy bread and milk in the morning". This fact suggests that certain part of older people visit the centre out of necessity and because they live in this neighbourhood. Dissatisfaction with absence of markets suggests that elderly are not interested so much about other kind of shopping. Staying in the centre is part of their daily routine. While younger people do not notice it as they visit the centre for other needs, but not for everyday needs e.g. home supply.
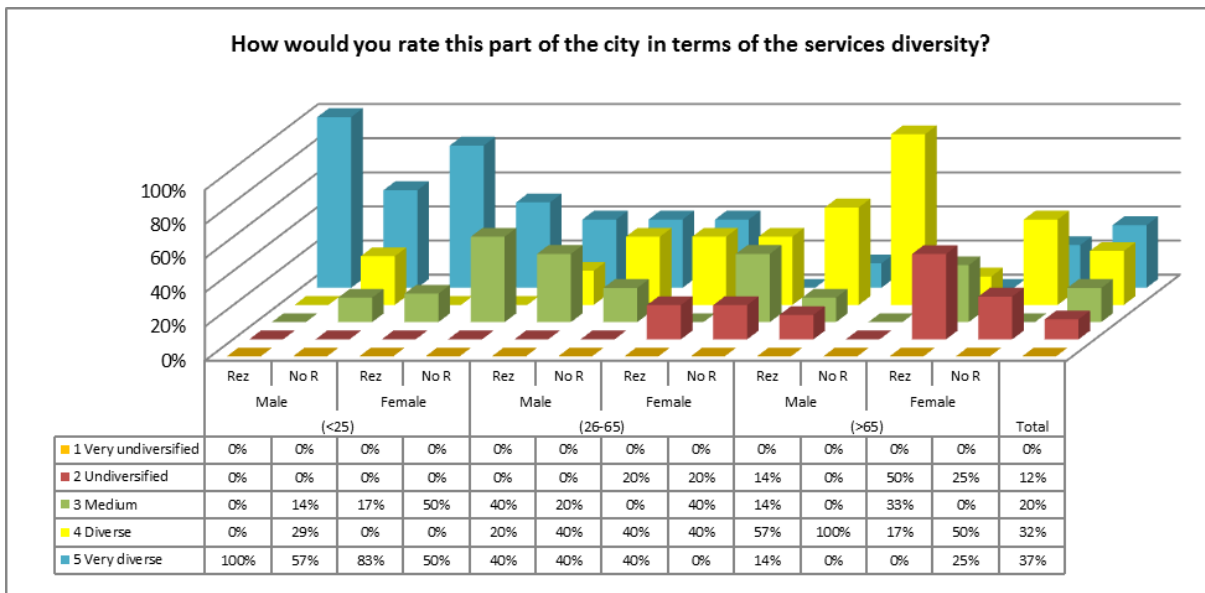
How would you rate this part of the city in terms of the services diversity?

	Rez	No R	Rez	No R	Rez	No R	Rez	No R	Rez	No R	Rez	No R	
	Male		Female		Male		Female		Male		Female		
	(<25)				(26-65)				(>65)				Total
■ 1 Very undiversified	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
■ 2 Undiversified	0%	0%	0%	0%	0%	0%	20%	20%	14%	0%	50%	25%	12%
■ 3 Medium	0%	14%	17%	50%	40%	20%	0%	40%	14%	0%	33%	0%	20%
■ 4 Diverse	0%	29%	0%	0%	20%	40%	40%	40%	57%	100%	17%	50%	32%
■ 5 Very diverse	100%	57%	83%	50%	40%	40%	40%	0%	14%	0%	0%	25%	37%

Figure 5-19 Perception on diversity of services

5.3.   Observations of subjective perception

An overall conclusion from the previous analysis of subjective perception is that subjective perceptions of sociability and subjective perceptions of street environment are mostly high and positive. Somewhat smaller number was from medium to high, a very small percentage of responses are in the low level. Residency had an impact on perception in some rare cases, while gender did not play an important role. Variations in perceptions depending on the age of people can be noticed.

When it comes to people's age, certain differences can be seen in the perception of people older than 65 years. In relation to the elderly, people aged between 15 to 25 years and people between 25 to 65 years had fairly similar opinions in both categories. Certain differences between their replies can be seen in the fact that the perception of people older than 65 years is very high in all cases, while the perception of people younger than 65 years is most often from medium to high.

Variations in the ranking of questions and additional associations with certain issues are the result of different factors that influence the subjective perceptions (please see section 2.3). **Cultural factors** are accountable for the common opinion of a certain group of people. This could explain the variation in the opinions of people depending on their age. In some cases, **memories and experiences** played a role, as well as the **time** spent in the city centre. The most common associations of people were **social factors**, which are related to the presence of other people, their activities and interaction with them. Rare were associations of **physical factors**. Physical factors are closely related to the **satisfaction** of the people, which were generally high and positive.

In most cases the satisfaction factor has played a crucial role. The perception of older people is generally high because their needs in the environment are sufficiently satisfied. On this basis, a presumption that the environment generally is in accordance with their needs, it is compared to people under 65 years old, whose satisfaction factor was in some cases medium to high and a presumption is that the environment does not meet all needs of this age group.

Mutual assessment of subjective perception and objective condition in the next chapter will examine whether the assumption is correct or not. Also, the assessment will allow it to be seen what is the impact of the street environment on sociability (physical and social factors), and what is the role of other factors on the sociability.

6. ASSESSMENT BETWEEN OBJECTIVE CONDITION AND SUBJECTIVE PERCEPTION

The following chapter deals with the comparative assessment of the objective condition of sociability and subjective perceptions of sociability, as well as the objective condition of street environment and the subjective perception of street environment. The analysis is carried out within the predetermined frame of objective domains of sociability and street environment.   The relationship between subjective perception and objective condition is additionally explained through the concept of "place attachment". It is a process in which, depending on their positive experiences, people form positive attitudes and emotions that make it possible to develop a relationship with the place and with people (see section 2.3). Factors that influence the creation of place attachment are physical and social factors of a specific area, cultural factors, personal factors, memories and experiences, satisfaction with the location, interaction with other people and interaction with the place through a variety of activities, and finally the time factor. These factors are outlined in the second chapter and used in this chapter for understanding subjective perceptions in relation to the street environment and sociability (see section 2.3).

6.1.   Objective and subjective sociability

- **Higher than average proportion of women**

When it comes to the diversity of people in terms of gender, that majority of respondents agree that it is quite diverse and very diverse. There are no differences in perception between men and women. The presence of women also indicates that the streets are safe. An analysis of the objective condition shows that the overall scores related to safety are quite high for each segment of the street. Therefore we can say that the perception of people is very objective in this regard and overlaps with the objective condition. Specifically, the presence of women in all segments has contributed to higher overall score of sociability per segment. Through the analysis of the objective condition it has been determined that the number of women is higher than the number of men (female- 54.58%; male- 45.41%). However, there was no gender difference in any street segment in relation to the choice of seats, space for walking and so on. Women were present in all segments of the street. The analysed streets are very successful in this regard, because success of public places depends on a higher proportion of woman (Whyte, 1980).

- **Different ages**

Subjective perception of the diversity of people regarding age is very high. The diversity of ages primarily means the presence of children and the elderly (PPS, 2014). Subjective perception does not coincide with the objective condition. Analysis of the objective condition of all three streets shows that the presence of children and the elderly is considerably less in relation to other age groups (elderly and children together - 11%). Segments of low and medium sociability are usually due to lack of children and senior citizens. Even some segments of a high sociability have no simultaneous presence of children and the elderly.

Objective condition shows that in the streets there is not enough content for children and elderly. Sidewalks should serve as a kind of unspecialized playground (Jacobs, 1961). Given that the streets do not have enough content for the youngest population, they use monuments as 'toys'. The lack of more unspecialized playground could be a reason for the absence of children on the streets. The situation is similar in respect to people older than 65 years. Their number in the streets is significantly limited and they

are mainly found in the segments where benches are present or the rare bar where people with similar years come. Unmatched subjective perception and objective condition is even greater because the respondents older than 65 years have also indicated that there is a large diversity of people in the city centre. The reason for this may partly be due to the period of observation in the early evening, around 6 PM. The majority of respondents older than 65 years were interviewed during earlier hours when their number was slightly higher. This explanation may also be due to the fact that the elderly and children often use public places while other people are working (PPS, 2014). Also, a portion of the respondents were not people directly on the three analyzed streets. Instead, they were people in vicinity of these streets. Near to the three analysed streets the Town Hall and market are found, (where there is usually a larger presence of elderly citizens) and it is very likely that their associations were in this respect. Older people go to the Town Hall during the working hours of Town Hall, while going to the market is also routine that is done in the morning hours. A woman older than 65 years said: "Often I sit on the bench in this street (Street Zmaj Jovina) when I go to the market...I'm an older woman, I cannot walk long". The presence of older people in the analysed streets is usually part of their daily routine where they stop to rest on the way to certain place (Lennard and Riley, 2010).

However, even in that period it was noticed that the number of elderly (3.83%) citizens was far less then people aged between 15 and 65 years (89.6%). It is very likely that their answers were due the experience of an even smaller number of older people of the same age in later hours. It may be that given answers are a consequence of comparison in relation to other parts of day.

Most people on the streets are aged between 15 and 25 years (51.57%). In fact, all of the respondents in this age group had a very high perception on the diversity of people in the streets. On the contrary, the objective condition shows that there is almost no elderly people in segments in which are most occupied by people aged between 15 and 25 years. This is because young people avoid sitting in bars where people are much older them.

- **High proportion people in groups**

People who are in groups in public places are usually found gathered in such a way because they decided in advance that they will spend time with other people from the group (Whyte, 1980). Subjective perceptions of how often the respondents gather with friends in the city have very dynamic results. Although the largest percentage of people often and very often hangs out with friends in the centre, there are certain differences with regard to different age groups. All people between 15 and 25 years said that they often and very often spend time with friends in the city centre, while people older than 25 years had answers in all categories. Some of them often or never hang out with friends in city centre. The objective condition shows a similar classification. In fact, most people who are in groups are people age between 15 and 25 years. Although it is possible to see people who are alone within this age group, many more people who are alone are present among population older than 65 years. This suggests that older people usually do not come into the city centre for gatherings with friends but rather for other reasons. Also, children are always in groups, but this is because they are too small to be alone on the street.

People in groups and their activities are also an indicator of the purpose of their stay in the city centre.

- **Friendly interaction - Activities**

Respondents stated a variety of reasons for their arrival in the city centre. The most common responses were to come for hanging out with friends, working place, shopping or due to commitments in public institutions. Whatever the reason, all respondents visit city centre often. Objective condition shows different activities of people which can indicate the purpose of their visit city centre. People who came for

gatherings usually sit in cafes drinking or eating, talking and laughing. They belong to the group of people who implement the "social activities" (Gehl, 2011). If they do not sit in cafes they are slowly walking through the streets, and very often they stop in front of shop windows. A large number of people who are in groups choose the places where there is a higher concentration of people. This confirms the theory that what most attracts people is presence of other people. Because of that people most often choose a place for spending time with friends where there is a large concentration of other people (Whyte, 1980). People who are not in the group did not come to gather with friends. The purpose of their visit is usually out obligations within the city centre, known as "necessary activities"(Gehl, 2011). These people were mainly observed to walk rapidly or are isolated and talking on the phone. Many of them avoid larger concentrations of people. Those people who are alone in a stationary activity (sit or stand) usually belong under the group of people who are implementing "optional activities". People in this group are usually older than 65 years and they were seen to sit, relax and observe the passers-by.

The objective condition shows that the diversity of activities is not presented in equal shares to all parts of the street. E.g. there are not enough children playing in the street because there is not enough content for children's play. According to the objective condition the greatest number of people involved in social activities are people aged between 15 and 25 years. This indicates that the street environment has most amenities that are attractive to this age group. Subjective perception shows that the majority of respondents believe that there is diversity of activities in the city centre, such as playing children, walking, etc. An explanation of why people believe that activities in city centre are diverse is probably because people only perceive activities that are important to them. Therefore, the perception of people younger than 65 years is high because there are plenty of activities that are interesting for their age. The elderly have a high opinion because they are generally not interested in social activities, but usually "optional activities".

Results indicate that subjective perceptions on the existing activities have a medium to high influence on people to participate in the same. Objective condition indicates similar results. The activities of people affect the same behaviour of other people. E.g. bars that are full of guests attract more people, but empty bars and restaurants people tend to avoid. The same situation is found in the bars in which there are mainly guests of a particular age group. For example, almost all people aged between 25 to 65 years sit in cafés where it is possible to eat something. A similar situation is found with playing children. Unknown children play together because they are attracted by the game other children. The overlapping of the objective conditions and the subjective perception can also be seen through some of the statements. E.g. respondent, age 25-65 stated: "... No serious place for serious people, our target group of people age more than 35 years". Certain people in this age group tend to separate from younger generation. Therefore, they choose places that are not interesting for people between 15 and 25 years. It is noticeable in a few restaurants dominated by only one age group.

From the assessment between subjective and objective sociability, the following observations can be made: (Table 6-1)

Table 6-1 Sociability - similarities and dissimilarities between subjective perception and objective condition

• **Higher than average proportion of women**	
Similarities	**1.** The perception of the diversity of genders is very high, regardless of the respondents gender. Furthermore, the number of women is higher than the number of men. Subjective perception and objective condition has merged. **2.** The presence of women indicates a safe area and according to objective conditions all the segments have a pretty high score of safety.
• **Diversity in age**	
Dissimilarities	**1.** All age groups have a high perception of diversity of people, but the objective

	condition shows that presence of children and the elderly is limited in comparison to other age groups
• **People in groups**	
Similarities	**1.** Subjective perception shows that the highest percentage of people between 15 to 25 years come to hang out with friends in the city centre and objective condition shows the same situation. The largest number of people in groups are people aged between 15 and 25 years
• **Diversity of activities**	
Similarities	**1.** Existing activities have a medium to high influence on people to participate in the same. The objective condition indicates the similar results. The activities of people affect the same behaviour of other people. E.g. bars that are full of guests attract more people, but empty bars and restaurants people tend to avoid
Dissimilarities	**1.** The subjective perception of most people is that there is a great diversity of activities on the streets, but this is not the case with the objective condition. For example, there are not enough children playing or people playing chess. Generally, the activities are mostly adapted to people aged 15 to 65 years.

Sociability is developing through the sense of "place attachment" where people feel affinity and familiarity with a certain area, where they feel comfortable, welcome and when they like the atmosphere of the area. Almost all respondents rated highly these qualities in the city centre. Depending on their individual responses the most common associations of people were **social factors**, interacting with people and the very interaction with the place, e.g. the presence of other people, their activities and socializing with friends. Among many similar answers, one answer was: "I feel comfortable because I'm seeing guys in this part of the city".

In addition to social factors, the **time factor** also played a role in the subjective perception. Some of the statements of the respondents were:"I feel very welcome since I was there my whole life", "Because I live here", "I grew up here", "Because I live here 15 years", etc. All respondents who cited the factor of residence had high perception, which is actually proof that regardless of the real situation of the space around them, the perception is conditioned by the time spent in the city centre. Therefore time factor explained the positive perceptions of people that live in the city centre, but also positive perceptions of those that visit the city centre for a long time, so they also find it close. However, the subjective perception of sociability had no association with **physical characteristics** of the street. This indicates that people believe that sociability depends more on the social characteristics of the place, their knowledge of city centre and time spent there, then the physical characteristics of the street environment.

Objective condition confirms that the social characteristics of street environment play important role in the presence of people and the way they spend time on the street. That is confirmed by the fact that people avoid sitting in bars if they have no other people; then people of the same age have similar behaviour in the street and they spend time in the vicinity of people similar age and so on.

Although people mostly tied up the sociability with social factors and the time spent in the city centre, the subjective perception of the street environment and objective condition of the street environment confirms that in addition to these factors, physical factors of the street environment and many other factors have the effects on sociability, which will be examined in the next section.

6.2. Objective and subjective street environment

- **Safety**

The subjective perception and objective condition are overlapping on the general level of all three streets. According to the subjective perception the majority of respondents feel safe in the city centre with regards to gender, age and residency. The objective condition shows that all the streets meet the criteria of safe places. Exceptions are found only in certain segments of low street environment, whose overall score of street environment is lower. Therefore, certain characteristics of lower street segments that are related to safety are below the score of higher segments. Also, the characteristics concerning safety within individual low segments are usually related to the presence of neglected greenery or graffiti, absence of street lamps, while only one segment has the presence of beggars.

Objective condition indicates that the presence of people is actually less in low street segments, but not because people feel unsafe in those segments but rather because these segments also have lower scores of other aspects of street environment. This can be seen by the fact that some segments of the medium sociability coincide with the segments where there are no lamps or where graffiti is present.

The objective condition in relation to the building condition and the sidewalk is of a very high level because all the pathways are clean and buildings are in good condition although they are old. Some respondents stated that the buildings are old and should be renovated, which does not coincide with the objective condition. However, respondents did not highlight whether they referred to buildings inside the analysed streets or outside, in some other streets in the city centre. Thus, this subjective perception is taken as a reserve, not as final. However, this does not affect their sense of safety.

Subjective perceptions on safety in the city centre are more related to the presence of people than the physical characteristics of street environments. In this case, **social factors** also have a greater role on the perception of people in relation to **physical factors**. Some of the responses were related to physical characteristics, such as the presence of destroyed lamps and empty streets. In this case, the objective condition does not coincide with the subjective perception because all lamps were in good condition and none of streets were completely empty.

Some of the other subjective perceptions are also consistent with the objective conditions and they are partly caused by **cultural factors.** A certain percentage of people age between 15 and 25 years do not feel completely safe because they considered that there are no police on the streets and that there is a presence of alcoholics and maniacs. Unlike these age group elderly feel completely safe. The cause of this can be sought in cultural factors, which are accountable for the common opinion of a certain group of people. All these reasons were regarding night life. People between 15 and 25 years generally prioritize nightlife and socializing with friends, hence they all share the similar perception regarding bars and socializing with friends. For older people it is not characteristic to have a night life. From there, there is an explanation of perception. So, through cultural factors perception differences from older and younger people can be explained, furthermore their relation to the environment. Objective condition shows that there is a lack of police on the streets, while the presence of alcoholics was not observed at the time of observation. The reason is also perhaps related to the period of the observation which was during the day. Otherwise, these streets are close to the popular night life area. The subjective perception of the presence of alcoholics is very reasonable, especially during night hours over the weekend.

- **Environmental Comfort**

Aspects of environmental comfort such as shade, temperature and light are highly related to the presence of awnings, canopies and greenery in the street, especially trees. The subjective perception of the presence of greenery is quite dynamic. Half of the respondents believe that there is enough greenery in the

street (mostly elderly), while the other half believes that there is not enough greenery or there is medium greenery (mostly people younger than 65 years). The objective condition is different for three streets. Street 1 has the most trees, while Street 2 has slightly less trees. The lowest level of greenery is in Street 3 where there are no trees at all.

However the role of trees in the microclimate conditions (e.g., shade), is closely associated with the possibility of sitting under the trees. The objective condition indicates that rows of trees on Street 1 play no role if it is not possible to sit under the trees. Even people who are moving choose the other side of the street where there is much more diversity of facilities on the ground floors of buildings.

The subjective perception that refers to the location of benches in relation to microclimate conditions largely coincides with the objective conditions in Street 1 and Street 2. In Street 3 this analysis does not give significant results because there are no trees and the number of benches is also limited.

People's perception about the position of benches depends on age. The elderly are completely satisfied with the location of benches, while people younger than 65 years believe that the position of benches is medium. The reasons that people offered help to explain the differences in perception. A girl aged between 15 and 25 years said: "I often avoid sitting on the benches near the cathedral during the summer, because there is no shade. Usually I go to a nearby park with my friends.", while a woman older than 65 years says:"I like to sit on this bench, because I can watch people". So, older people sit on benches regardless of environmental comfort if the location of the bench meets some other important needs for them, such as observing passers-by. As already explained earlier (see section 5.2.6), the difference in perception is due to the fact that people younger than 65 years much prefer environmental comfort, while for elderly it does not play an important role in comparison to their other needs.

The objective condition reflects almost the same as subjective perception. The elderly are usually observed to sit on the benches with a "good view" regardless of whether there is a tree above or not, while younger people prefer places with a canopy above the seats (tree or artificial canopy). Thus, for example all bars without open sunshades were emptier compared to the cafes where sunshades were open (even when it is the same cafe).

In the above cases, **satisfaction factor** is crucial for the subjective perception regarding to the environmental comfort. Objective condition shows that people choose the places that meet their needs for environmental comfort and that they avoid those places that do not meet their needs.

- **Physical Comfort**

Objective condition shows that the possibility of sitting is one of the most important elements of street environment for people. Subjective perception on the presence of benches in the city centre is medium to high. The elderly are completely satisfied with the number of benches in the city centre, while people younger than 65 years consider that there are not enough, an average amount or that there are enough public seats in the city centre. The presence of the benches differs in three different streets. Number of benches at Street 1 and Street 2 is significantly higher compared to Street 3 where almost no benches are found. Subjective perception shows that older people appreciate most benches with "good view". The objective condition shows the same. People older than 65 years are usually seen on the benches that allow them to view a bigger part of the street, while benches that are located in the segments of high street environment and meet all other street qualities (except 'good view'), lack the presence of older people. This is visible on all benches on which older people sit in Street 1 and Street 2.

Subjective perception shows that elderly feel that there is enough street equipment (trash cans, lamps etc.), while people under 65 years of age usually believe that there is not enough or that there is a medium availability of street furniture. The most frequent reason of lower perception on street equipment is the lack of bins. Objective conditions indicate the opposite and bins are found in almost every segment of all three streets. Hence there is a certain discrepancy between subjective perception and objective

condition according to street equipment. Since the perception on the street equipment is much lower for people under 65 years old, that means that they are quite selective in the choice of the environment in which they spend time regarding presence or absence of street equipment. Objective conditions indicate that people younger than 65 years are usually in the segments of high street environment, where analysis of each segment individually indicates the presence of some street furniture. A smaller number of people from this age group are found in segments with absence of street furniture.

The subjective perception of the diversity of facilities is very varied depending on the age group of people. People older than 65 assessed that there are enough shops for everyday purchases. People younger than 65 years of age believe that diversity is from medium to high. The objective condition shows a certain overlap with the subjective perception of the elderly. Although nearly every segment of the three streets has at least two to three different types of facilities on the ground floor, they are usually boutique shops, shoe shops, mobile phone store, bars etc. The objective condition indicates that although there are a variety of facilities at a level of each segment, almost all of those facilities are repeated from segment to segment. Therefore, the objective condition of all three streets shows that indeed there are no shops for everyday purchases. Two to three kiosks are present in every street but these are not places that can supply people who live near these three streets.

The difference in the subjective perception in the above cases of the physical comfort shows that the perception of the people is mostly affected by **satisfaction factor** which in turn is caused by the presence or absence of some physical element that meets the needs of a certain age group.

- **Pleasure**

The subjective perception of street performances in terms of street sales or festivals, street art, etc. is very high, and almost all the respondents believe that there are often street events or even events on a daily basis. Objective conditions show that in every street there are a few street vendors of souvenirs. In Street 3 a street musician and one street painter and one vendor of balloons for children in Street 2 was observed. However, apart from these street happenings, no other festival and similar events have been seen. The reason for this may be a period of observation in where accidently on those days there were no festivals. (The day before street dancers in national costumes, who were passing through all three streets were seen).

Example is a statement of one of the respondents: "There's always something going on. Just yesterday a group of people in national dance costumes walked through the street". In this case, the subjective perception was caused by a factor of everyday **experiences and memories**. "It is never boring", is a statement which confirms prior experience of daily events, and affects the high perception even in the moment when the objective state shows that events are not on a high level. Although it seemed that memories and experiences are factors that affect only the perception of people who have lived in the city centre for a long time, these factors had an impact regardless of the residence of the respondents. This is explained by the fact that the centre of the city is the most popular place in the city, and a large number of people visit this space, therefore there are also certain memories and experiences.

Subjective perception shows that elderly feel that there are enough shrubs and flower plants while people under 65 years of age usually believe that there is not enough or there is a medium presence of flowers and shrubs. Objective condition shows that in Street 1 there are a lot of flowers and decorative shrubs. In this street there is the most visible variety of textures and colours characteristic of this type of decoration. A similar situation exists in the street 2, where the flowers hung on every lamp and a large number of restaurants and bars have their decorations in the form of flowers. But in Street 3 decorations in the form of flowers and shrubs is much less present, except as part of the decorations in some of the restaurants. Since the design of lamps in this street differ from the other two streets, they have no flowers. Since the perception of the presence of shrubs and flowers is much lower for people under 65 years old,

this means that they are quite selective in the choice of the environment in which they spend time regarding presence or absence of shrubs and flowers. Objective conditions indicate that people younger than 65 years are more present in the Street 1 and in the Street 2, where analysis indicates the presence of this kind of decoration. Smaller numbers of people from this age group have been seen in the Street with an absence or a bigger absence of flowers and shrubs. This type of decoration is not a crucial requirement for the presence of people, but it certainly contributes to the visual quality of the environment in which people want to spend more time than the one in which it does not exist.

- **Community places**

Selectivity is not only present in the choice of public seats but also in the choice of bars and restaurants, as already explained (see section 4.4). The objective situation shows that older people have the possibility to gather in cafes and restaurants, except a few restaurants in Street 3 and they are quite deprived of gathering in restaurants and bars. Subjective perception shows that people in all age groups believe that there are enough bars and restaurants for gathering. Very few people said that there are "no serious places for serious people", for people above 35 years. But the objective condition shows that there is certain number of restaurants where this group of people is prevalent and where there is no presence of younger people.

Respondents did not point out monuments as important gathering places or places for meeting with other people, even though monuments are recognizable elements and a focal point that serves as a meeting point. The objective condition indicates that two monuments in Street 2 and in Street 3 are important gathering places for the children and important places for children to play. But the objective condition also shows that all other age groups are not found around the monument. The perception of children is not involved in this research. Therefore evaluations between objective condition and subjective perceptions of this age group are not possible.

The following table shows the similarities and dissimilarities between subjective perceptions and objective conditions: (Table 6-2)

Table 6-2 Street environment - similarities and dissimilarities between subjective perception and objective condition

Safety	
Similarities	**1.** Subjective perception shows that everyone feels safe, mostly because of the presence of other people. Objective condition shows that people were constantly present in all streets during the observation. **2.** The subjective perceptions of some respondents indicate that they feel unsafe because there are no police on the streets. Objective condition shows that not a single police officer has been spotted on the streets
Dissimilarities	**1.** Subjective perception of some individual respondents for unsafe feeling was the presence of destroyed lamps and empty streets. Objective condition shows that there are no destroyed lamps or empty streets in the city centre. **2**. Some of respondents stated that buildings are old and should be renovated, but according to an analysis of objective conditions, the buildings in the centre are old but in good condition and does not need to be renovated.
Environmental comfort	

Similarities	**1.** The subjective perception of the presence of vegetation in three streets varies from low to high. Objective condition shows that the presence of vegetation in three streets also varies from Street 1 where there is present plenty of greenery, in the Street 2 slightly less, while at Street 3 there is not a single a tree. **2.** People younger than 65 years do not want to sit if there is no shade above the seats. Objective condition shows that this age group tend to not sit in places if sunshade is not an option.
Physical comfort	
Similarities	**Sitting place:** **1.** Subjective perception shows that older people appreciate the benches with a "good view". Objective condition indicates that all the benches used by elderly are at locations where it is possible to see a large part of the street. Benches that have other qualities (e.g., shade), except so wide "view" in compare to the benches with "good view" are without presence of elderly people. **Street equipment:** **2.** Subjective perceptions on urban equipment are low to moderate for people younger than 65 years. Objective condition shows that they spend time in segments where there is always some of the street equipment. **Diversity of facilities and retail** **3.** The subjective perception of the elderly is that there is no diversity of facilities (no shops for daily purchases). Objective condition indicates that there is not such types of stores in any of the streets; On the general level, for all the streets, diversity of facilities is low because the same facilities are repeating
Dissimilarities	**Street equipment:** **1.** Certain number of people think that there are not enough bins, the objective condition shows that bins are present in almost every segment in all three streets Diversity of facilities and retail **2.** The subjective perception of the elderly is that there is no diversity of facilities, but objective condition on segment level shows that in any segment there is a present diversity of facilities (usually 2 and more)
Pleasure	
Similarities	**Flowers and shrubs:** **1.** Subjective perception of people younger than 65 years about the presence of flowers, shrubs etc. is from medium to high. Objective condition shows that they choose the streets with higher visual quality in terms of texture. That is why at Street 3 there is less people of this age, because it has less flowers, greenery
Dissimilarities	**Street events:** **1.** Subjective perception shows that street events are almost on a daily level. Objective condition shows the absence of festivals and street events except the presence of only one street musician and few street vendors
Community places	
Similarities	**Restaurants and bars:** 1. Subjective perception is that there is enough space for gathering in terms of restaurants and cafes. Objective condition shows that there are a number of cafes and restaurant.
Dissimilarities	**Restaurants and bars:** **1.** Although a small number of people between 25 to 65 years old thinks that there is no restaurant adapted to their age. objective condition shows that in every street there are

	restaurants where prevails this age group of people. **Monuments and other meeting places:** **2.** People did not cite monuments as important factors of the city for gathering the people; however, monuments play an important role in gathering of children.

6.3.   Observations of assessment between objective condition and subjective perception

The first parallel between the objective condition and subjective perception is the similarity in categorization in relation to the high, medium and low levels in both analyses. According to the explanation of high, medium and low levels of sociability and street environment (see section 4.4), it can be concluded that people younger than 65 years generally prefer a high street environment while people older than 65 years are noticed also in some stationary activity in the segments of lower levels of street environment. When it comes to the categorization of high, medium and low levels in subjective perception then there is also a difference between people older than 65 years and people younger than 65 years. The perception of the elderly is generally high while the perception of younger ages usually vary from medium to high. This phenomena can be explained with the fact that older people have lower expectations and needs in oppose to younger people. People younger than 65 years are more critical toward the environment and therefore, more exclusive about it. Thus, they choose the best possible street environment. This is contrary to the elderly who do not care so much whether a certain environment has more or less street characteristics as long as the environment has some crucial elements that satisfy their needs (e.g. benches with "good view"). Thus, their perception is usually high.

Prior determination of similarities and differences between the objective condition and subjective perceptions in a number of cases has confirmed the situation that was observed during field research. The causes of dissimilarities can be sought in the timing of observation. However, this type of explanation could be a certain kind of speculation and cannot be considered as a definitive explanation for certain dissimilarities between objective condition and subjective perception. Understanding of the relationship between sociability and the street environment is however dependent on the perceptions of people and their place attachment. Therefore, understanding of the people perception through the factors of "place attachment", provided additional explanation in the relationship between sociability and street environment.

The analysis showed that besides **social and physical factors**, that influence perception of people, other factors have a great influence on the feeling of belonging as well. At a common level for all three analyzed streets, it can be concluded that certain age groups have different needs and accordingly choose a place and manner in which to spend their time. **Satisfaction factor** actually showed which are the needs of certain generations, and so older people do not have a great need for environmental comfort, or pleasure, if the street satisfied their need for sitting and observing. Oppose to them, young people also use sitting places, but if the surrounding does not satisfy all the other aspects they won't sit there. Besides the satisfaction factors, difference in perception of people, depending on the age difference, can be seen in **cultural factors** which influences certain groups to act and think in the same way. Variation of understanding of the street safety is noticed between the younger and older people. **Memories**, **experiences** and **time** spent in the centre are a sign of positive perception in most of the cases. These factors influenced both people living here and occasional visitors, so in the overall opinion of these two there are no big differences. Occasional visitors feel the connection to the centre because of the frequency of visiting, but also because it is a focal point of the city and one of the first associations at the city they are living in. One of the most significant factors is surely the **personal factor.** Personal factor is the individual's perception, which depends on gender, age, class, culture, individual opinions and such. Finally, each person is an individual and sometimes the perception of certain matters is known and logical only to

them. Even if some perceptions have no basis in reality, some completely personal reasons may be the explanation for the discrepancies with the real situation.

Finally, any of these factors can be the crucial one for ones decision of spending time in that space or not. For example, the fact that the number of people older than 65 years in the city centre is small, shows that the centre is not enough a sociable place for this age group. But, based on perception of this age group, it can be concluded that their seeing on the overall situation is different and that they like spending time there.

Sociability cannot be observed only through objective condition. It is very important to take into consideration how do these people feel in the city centre. Based on the answers that were mostly positive, conclusion is that people spending time on the streets like that they are there, no matter that some elements of the street environment do not support sociability completely.

Place is also sociable as much as people that spend their time there enjoy it, and while they notice more the positive elements rather than negative.

7.   CONCLUSION

This chapter presents conclusions of the research carried out in city centre (Novi Sad) which aimed at the relationship between the micro-scale street environment and sociability of the streets considering both objective condition and subjective perception about the same. The conclusion will be set at per each objective of the study.

The **first objective** and research questions are related to objective indicators of sociability are identified together with indicators of street environment. The indicators of sociability relevant for the research are high proportion of people in the groups, higher proportion of women then average, different age groups and willingness of people to interact, as well as different social activities that encourage the interaction between people. The objective indicators of street environment include aspects of safety, environmental comfort, physical comfort, pleasure and community places. These factors are concluded from theories that involve 'place' and 'place attachment'. Hence, they include physical, social, cultural, personal factors, memories and experiences and time factors.

In the **second objective** sociability and street environment are analysed through the objective condition and subjective perception.
   Analysis of sociability and street environment through the objective condition results in categorising streets in high, low and medium sociability enabled seeing that the medium grade is the most common one meaning that the sociability is also at that level. Street 2 differs with a high grade in sociability, and also the level of street environment here is one of the high quality, while the other two streets have the medium one (because number of older people and children is lower than other age groups). Results of all three streets show that the most number of segments of high and medium sociability overlays with segments of high street environment. Conclusion is that high street environment usually means high sociability since people tend to stay in the high quality places. Stationary activity is the dominating one in these cases (sitting and talking, standing and talking).
   Exceptions are seen when high sociability overlays with low environment and vice versa, and they show that these segments have some element that is crucial for staying of one of the age groups. Low sociability in high environment case shows us domination of one age group at a certain place, meaning that people tend to be surrounded with their generation so groups other than the one dominating avoid this segment. In the case of high sociability and low environment we can see that the case has this shape only because of the presence of a bench with a good view which enables staying of the elderly group while the other groups are just passing by. In example age group from 15-25 dominate in bars, while the ones from 25-65, usually parents, dominate in places with food or with slightly higher prices. These two groups usually do not mix, regardless to high street environment.
   Certain exceptions show that some street elements determine the street sociability in some cases, regardless to the overall street quality. Sitting is an element of the street environment which was noticed as an important element in interaction of people. Elements of safety do not have a direct impact on sociability etc. Street environment is not an important factor when looking at gender of people.
   Some differences are noted regarding the age difference. Presence of elderly people and children is far less than the presence of people in the age scope of 15 and 25 years and the scope of 25 and 65. Differences in behaviour are noted in relation to the characteristics of the street environment. Individual characteristics of the streets are more important to people that are older than 65 years, especially the possibilities of sitting with a 'good view', while other elements are not crucial for their presence. Unlike them for the people in the age between 15 and 65 years besides sitting (which on first sight seems crucial), they find very important that the street environment are of high quality and to satisfy the rest criterion of

physical comfort, environmental comfort, pleasure etc. For children crucial are playing elements, in example presence of monuments in function of "toys". People of similar age choose bars with similar generations as theirs.

According to **subjective perception** results show that generally the perception of people about the sociability and street environment is positive. However, with a detailed analysis it is concluded that there is a variation about perception of people. Perception of people older than 65 years is very high in all cases while the perception of people younger than 65 years is most frequently medium or high. The biggest differences in people perception were regarding certain elements of the street environment. Older people according to their age have less needs which results in their higher perception of sociability and environment, while young people, on the other hand, require more factors to satisfy their needs, which sometimes results in lower perception of street and its sociability.

Regardless to overall street environment quality and street's sociability, relations between street segments of different sociability and segments of different street environment are the same in all three study area streets.

Based on the **third objective**, the understanding of the relationship between sociability and street environment is concluded with comparison of the objective condition and the subjective perception. Results of evaluation in most cases confirm the state which is noticed during field research. With this comparison additional explanations are obtained, which deal with why certain segments of sociability match or miss match with segments of street environment. Finally, it can be concluded that certain age groups have different needs and according to that they choose places where to spend their time. Also, similarities between objective condition and subjective perception show why people more or less prefer certain micro-characteristics of streets compared to other people (older people prefer more benches with nice view than proper environmental comfort). The causes of dissimilarities between objective condition and subjective perception can be sought in the timing of observation. This type of explanation could be a certain kind of speculation and cannot be considered as a definitive explanation. So, in the scope of the third objective the relation between sociability and street environment is additionally analysed through 'place attachment'.

Perception of people about some place depends on factors that were identified in objective one. Results show that factors as memories, habits after many years of habitation or visiting the city centre, also personal experiences and expectance of the space to influence that perception of people becomes different from the state which is shown by objective condition. Depending on that people develop a feeling for 'place attachment' which influences sociability.

Finally, the relation between sociability and street environment can not only be observed through objective condition. Even when objective condition is maybe not showing that the place is sociable enough for certain age group, it is also important to pay attention to the perception of those people that spend time there. Sociable place is at the same time also a place where people that spend time there feel proud and satisfied no mater of the possible poor quality of the place.

7.1. RECOMMENDATIONS

The recommendations for further researches and eventual improvement of quality of sociable streets:
- In the future, both for researches and street improvement, the opinions and requirements of children need to be included and considered.
- Any street analysis and improvements have to consider needs and requirements of all age groups, since streets cannot be exclusively designated only for certain age group. Due to that,

improvements should include planning and analysis of urban furniture, illumination, materialisation and activities present at the area.
- This research proved that sociability and quality cannot be analysed on city level, but it is needed to conduct it on street or even its parts level.

Future plans and streets reconstructions should involve people and their perceptions, as one of the crucial factors, since, in the end, the streets are made for people.

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APPENDIX I

WALKING INTERVIEW

Hello. My name is Kosana Markovic. I am a student in the Urban Planning and Management program at the Faculty of Geo-information Science and Earth Observation, at the University of Twente. As a part of my master thesis, I am studying people's ideas about some parts of city of Novi Sad. Anything you say will be treated as confidential. Your responses and inputs will not be directly associated with your name but will be combined with responses from other participants in this project to become a collective data-source. As a part of the walking interview, I will ask you a few questions. The choice of the path through which we are moving is your decision. I am not testing you on your knowledge about Novi Sad. There are no right or wrong answers to these questions. I am interested in your opinions.

I appreciate your participation in this study.

Thank you.

Attribute	The level of assessment				
	1	2	3	4	5
1. SOCIABILITY					
How familiar are you with the city center?	Not familiar	Not enough	Medium	Enough	Very familiar
How often do you visit this part of the city?	Almost never	Rarely	Medium	Often	Very often
How often do you hang out with people on the streets in the city center?	Never	Rarely	Occasionaly	Often	Very often
How do you rate people engagment in activity on the streets (walking, eating, games…)?	Hardly any	Not enough	Medium	Enough	Plenty
How does the activity of other people on the street encourages your interaction and use of street?	Very discourage	Discourage	Medium	Encourage	Very encourage
How would you assess the diversity of people on the streets, taking into account age, gender?	Not diverse at all	Very little diverse	Medium	Quite diverse	Very diverse
Do you feel welcome in this part of the city?	Very unwelcome	Unwelcome	Medium	Quite a welcome	Very welcome
Why do you feel welcome / unwelcome?					
How do you rate overall atmosphere in the city	Veoma loša	Loša	Srednje	Dobra	Veoma dobra

center?					
Why? Explain.	Reasons:				
2. STREET ENVIRONMENT					
How safe do you feel in city center?	Very unsafe	Unsafe	Medium	Safe	Very safe
What makes you feel safe/unsafe?					
How would you rate the overall physical condition of the buildings?	Very poor	Poor	Medium	Good	Very good
How would you rate the overall physical condition of the sidewalks?	Very poor	Poor	Medium	Good	Very good
Do you think that in this part of the city has greenery and green spaces?	Hardly any	Not enough	Medium	Enough	Plenty
How do you feel about amount of places to sit on the streets (benches, chairs)?	Hardly any	Not enough	Medium	Enough	Plenty
How would you assess the position bench in place (shade during the day, night lighting, etc.?	Very bad	Bad	Medium	Good	Very good
How comfortable do you feel walking through the streets in the city center?	Very uncomfortable	Uncomfortable	Medium	Comfortable	Very comfortable
Why comfortable/uncomfortable?					
What do you think about the arrangement of streets? Is there enough trash cans, lamps, baskets flowers, pillars?	Hardly any	Not enough	Medium	Enough	Plenty
How would you rate this block for its occurrence, frequency of outdoor events, such as	There is no events at all	Very little happening	Medium	Frequent events	Very often (daily events)

block parties, outdoor sales, festival sales and other outdoor events?					
Do you think there are in the city center enough places for gathering and spending time with people on the street?	Almost there are none at all	There are not enough	Medium	Enough	Plenty
How would you rate this part od city in terms of the diversity of services?	Very undiversified	Undiversified	Medium	Diverse	Very diverse

Age:..

Gender:……………**male…………/……..female**..................................

Do you live in this part of the city?..................**yes..../....no**..................

What brings you here? And what do you do when you are
here?...

APPENDIX II
SET OF OBJECTIVE INDICATORS (OBSERVATION)

Objective indicators-sociability:

Number of groups	>3 = 3	1 - 3 =2	<1 = 1
Presence of woman	Yes = 1	No = 0	
Presence of children	Yes = 1	No = 0	
Presence of elderly	Yes = 1	No = 0	
Different ages in groups	Yes = 1	No = 0	
Empty segment	High = 3 (all age groups)	Moderate = 2 (two age groups)	Low = 1 (Only one age group)
People alone	Yes = 1	No = 0	

Objective indicators- street environment:

1. SAFE			
Neglected vegetation -	Yes = 1	No = 0	
Presence of cameras +	Yes = 1	No = 0	
Presence of street lights +	Yes = 1	No = 0	
Presence of "wrong kind of people" -	Yes = 1	No = 0	
Presence of graffiti -	Yes = 1	No = 0	
Unclean path (litter)-	Yes = 1	No = 0	
Building conditions -	Bad = 3 (need for repair, old)	Moderate = 2 (medium conditions)	Good = 1 (no need for repair)
2. ENVIRONMENTAL COMFORT			
Presence of awnings, canopies or overhangs +	Yes = 1	No = 0	
Presence of trees +	Yes = 1	No = 0	
3. PHYSICAL COMFORT			
SITTING			
Number of benches (Presence of benches) +	Yes = 1	No = 0	
WALKABLE			
Generous sidewalk width +	High = 3 > 3 m	Moderate = 2 1.5 - 3 m	Good = 1 >1.5 m
Car parked on the sidewalk -	Yes = 1	No = 0	
Walking path condition -	Good = 3 (no need for repair)	Moderate = 2 (medium conditions)	Bad = 1 (need for repair)

GREEN SPACE			
Presence of green space (trees, grass) +	Yes = 1	No = 0	
STREET FURNITURE AND ARTIFACTS			
Presence of bins +	Yes = 1	No = 0	
Presence of street lights, tables, tree trunks, poles, parking meters, bicycle racks, newspaper-dispensing boxes, integral seating as ledges, railings… +	Yes = 1	No = 0	
EATING ESTABLISHMENTS			
Presence of restaurants and cafes +	Yes = 1	No = 0	
Varity of shops +	High = 3 (more than 3 different)	Moderate = 2 (1 - 2)	Low = 1 (One or less)
Presence of retail +	Yes = 1	No = 0	
High degree of articulation with nooks, corners, small setbacks in adjacent walls, and land-scope elements such as ledges, planters, and so on +	Yes = 1	No = 0	
4. PLEASURE			
"Blank walls" -	Yes = 1	No = 0	
Presence of special events (green markets, street performances, street vending, public art, community meetings, spectacles) +	Yes = 1	No = 0	
Presence of shrubs and flower plants +	Yes = 1	No = 0	
It is possible to see activates in buildings(shop windows) +	Yes = 1	No = 0	
Paved sidewalks +	Yes = 1	No = 0	
5. COMMUNITY GATHERING PLACES			
Presence of facilities with the possibility of sitting +	Yes = 1	No = 0	
Presence of monuments	Yes = 1	No = 0	

APPENDIX III

SUBJECTIVE AND OBJECTIVE INDICATORS

Values	Subjective indicators	Objective indicators
Sense of safety	- Satisfaction level about safety - Personal factors - e.g. lack of place (negative); presence of people (positive)	Neglected vegetation
		Presence of cameras
		Presence of street lights
		Presence of "wrong kind of people"
		Presence of graffiti
		Unclean path (litter)
		Building conditions
Environmental Comfort on the Street	Perception on bench position Perception of greenery and green space	Presence of awnings, canopies or overhangs
		Presence of trees
Physical Comfort and Convenience on the Street	- Perception on sitting places - Perception on street equipment - Perception on physical condition of the buildings in this part of the city in terms of cleanliness or need for repair - Perception on physical condition of the sidewalks in this part of the city in terms of cleanliness or need for repair - Personal factors (e.g. lots of people and crowds - positive)	Number of benches (Presence of benches)
		Generous sidewalk width +
		Car parked on the sidewalk
		Walking path condition
		Presence of green space (trees, grass)
		Presence of bins
		Presence of street lights, tables, tree trunks, poles, parking meters, bicycle racks, newspaper-dispensing boxes, integral seating as ledges, railings…
		Presence of restaurants and cafes
		Varity of shops
		Presence of retail
		High degree of articulation
Sense of pleasure	- Perception on street performances - Street festivals, musicians, art, street vendors… - Perception on diversity of facilities in ground floors	"Blank walls" -
		Presence of special events (green markets, street performances, street vending, public art, community meetings, spectacles) +
		Presence of shrubs and flower plants +
		It is possible to see activates in

		buildings(shop windows) +
		Paved sidewalks +
Sense of Belonging: Community Places	Perception on places for gathering and spending time	Presence of facilities with the possibility of sitting +

APPENDIX IV

SAMPLE SEGMENT SCORES (street environment) - Ilwis

Criteria Tree	SEG	SEG	SEG	SEG	SEG
Level od sociable street environment -- Direct	0.82469	0.85326	0.69085	0.75509	0.72046
0.20 SAFETY -- ExpVal	0.7143	0.8572	0.8572	0.8572	0.7143
0.14 Presence of cameras -- Std:Maximum	0.0001	0.0001	1	1	0.0001
0.14 Presence of street lights -- Std:Maximum	0.0001	1	0.0001	0.0001	0.0001
0.14 Presence of neglected vegetation -- Std:Maxim...	0.0001	0.0001	0.0001	0.0001	0.0001
0.14 Presence of "wrong kind of people" -- Std:Max...	0.0001	0.0001	0.0001	0.0001	0.0001
0.14 Presence of graffiti -- Std:Maximum	0.0001	0.0001	0.0001	0.0001	0.0001
0.14 Unclean path (litter) -- Std:Maximum	0.0001	0.0001	0.0001	0.0001	0.0001
0.14 Building conditions -- Std:Maximum	1	1	1	1	1
0.20 ENVIRONMENTAL COMFORT -- ExpVal	0.500	0.500	0.500	0.500	0.500
0.50 Presence of awnings, canopies or overhangs -- ...	1	1	1	1	1
0.50 Presence of trees -- Std:Maximum	0.0001	0.0001	0.0001	0.0001	0.0001
0.20 PHYSICAL COMFORT -- ExpVal	0.9091	0.9091	0.6970	0.8182	0.7879
0.09 Presence of benches -- Std:Maximum	0.0001	0.0001	0.0001	0.0001	0.0001
0.09 Generous sidewalk width -- Std:Maximum	3	3	3	3	3
0.09 Car parked on the sidewalk -- Std:Maximum	0.0001	0.0001	0.0001	0.0001	0.0001
0.09 Good walking path condition -- Std:Maximum	3	3	3	3	3
0.09 Presence of green space (grass) -- Std:Maximum	0.0001	0.0001	0.0001	0.0001	0.0001
0.09 Presence of bins -- Std:Maximum	1	1	0.0001	1	1
0.09 Presence of street lights, tables, tree trunks, pole...	1	1	0.0001	0.0001	0.0001
0.09 Presence of restaurants and cafes -- Std:Maxim...	1	1	1	1	1
0.09 Varity of shops -- Std:Maximum	3	3	2	3	2
0.09 Presence of retail -- Std:Maximum	1	1	1	1	1
0.09 High degree of articulation with nooks, corners,...	0.0001	0.0001	0.0001	0.0001	0.0001
0.20 PLEASURE -- ExpVal	1.000	1.000	0.400	0.600	0.600
0.20 Presence of "Blank walls" -- Std:Maximum	0.0001	0.0001	0.0001	0.0001	0.0001
0.20 Presence of special events (green markets, street...	1	1	0.0001	0.0001	0.0001
0.20 Presence of shrubs and flower plants -- Std:Max...	1	1	0.0001	0.0001	0.0001
0.20 It is possible to see activates in buildings(shop w...	1	1	1	1	1
0.20 Paved sidewalks -- Std:Maximum	1	1	0.0001	1	1
0.20 COMMUNITY PLACES -- ExpVal	1.000	1.000	1.000	1.000	1.000
0.50 Presence of facilities with the possibility of sitti...	1	1	1	1	1
0.50 presence of monuments -- Std:Maximum	0.0001	0.0001	0.0001	0.0001	0.0001

SAMPLE SEGMENT SCORES (sociablity) - Ilwis

Criteria Tree	Seg	Seg	Seg	Seg	Seg
Sociability -- ExpVal	0.4049	0.5953	0.8572	0.5953	0.7143
0.14 Number of groups -- Std:Max...	1	2	3	2	3
0.14 Presence of women -- Std:Max...	0.001	1	1	1	1
0.14 Presence of children -- Std:Ma...	0.0001	0.0001	0.0001	0.0001	0.0001
0.14 Presence of elderly -- Std:Max...	0.0001	0.0001	1	0.0001	0.0001
0.14 Differente ages -- Std:Maxim...	1	1	2	1	2
0.14 People alone -- Std:Maximum	0.0001	1	1	1	1
0.14 Empty segment -- Std:Maxim...	1	0.0001	0.0001	0.0001	0.0001

APPENDIX V

SOCIABILITY AND STREET ENVIRONMENT. OBJECTIVE CONDITION. STREET 1 AND STREET 3

Gender and age structure- All three streets

All streets			
	Male	**Female**	**Total**
>65	15- 4.51%	13-3.25%	28-3.83%
25-65	135-40.66%	139-34.83%	274-38.03%
15-25	159-47.89%	218-54.63%	377-51.57%
<15	23-6.92%	29-7.26%	52-7.14%
Total	332-45.41%	399-54.58%	731- 100%

Street 1 - Kralja Aleksandra

1.   Street 1

The map of street 1 represents the level of sociability (1) and the level of street environment (2) in different segments of the street (Figure 1). Different colours are used to illustrate the different levels in both categories of measurement, where the red colour represents low level, yellow colour represents medium level and green colour represents a high level of sociability and street environment. Street 1 is 240 m in length and has been split into twenty four (24) segments, where each segment is scored according to the objective indicators of sociability and objective indicators of street environment..
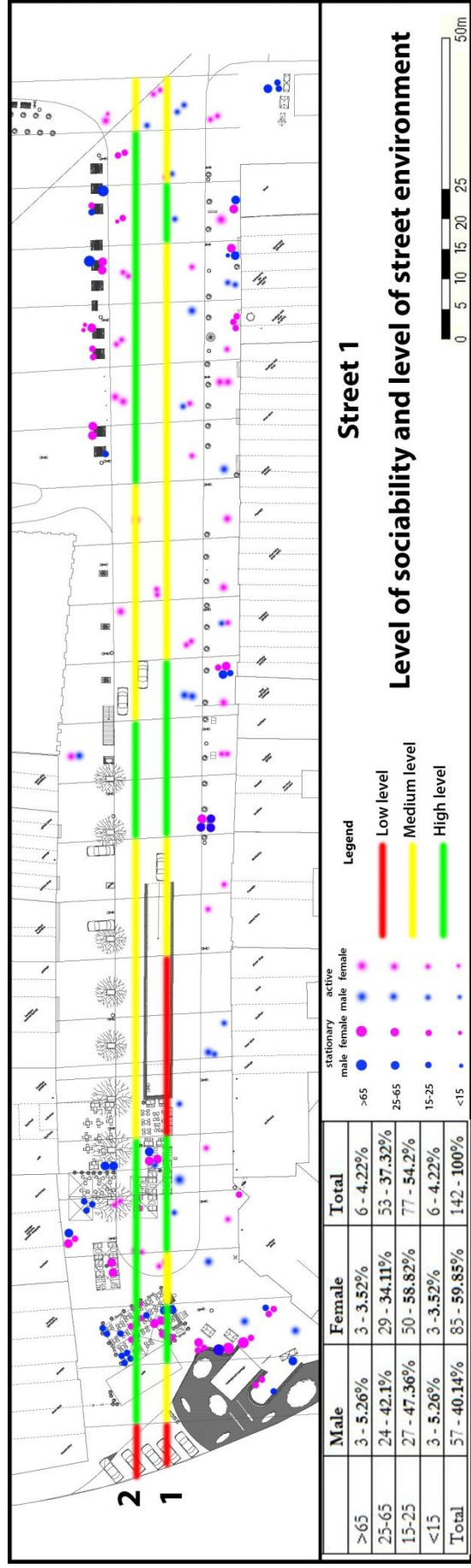
Street 1

Level of sociability and level of street environment

Legend

	Low level
	Medium level
	High level

	stationary		active	
	male female	male female
>65		
25-65		
15-25		
<15		

	Male	Female	Total
>65	3 - 5.26%	3 - 3.52%	6 - 4.22%
25-65	24 - 42.1%	29 - 34.11%	53 - 37.32%
15-25	27 - 47.36%	50 - 58.82%	77 - 54.2%
<15	3 - 5.26%	3 - 3.52%	6 - 4.22%
Total	57 - 40.14%	85 - 59.85%	142 - 100%

Figure 1 Street 1 map - Level of sociability (1) and level of street environment (2)
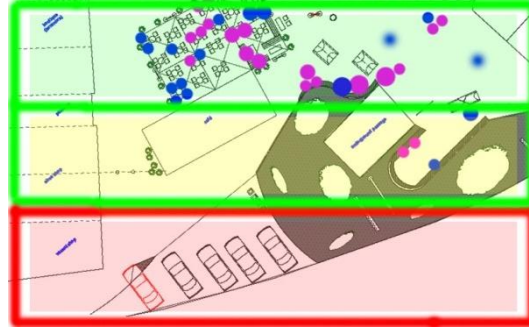

Figure 2 Increased segment-matches and mismatches

Figure 3 High sociability and high street environment

Figure 4 Trees that have no function

1.1 Objective sociability

Number (1) on the map represents the level of sociability in different segments (Figure 1). The total 24 scores range from 0.404 to0.928.The High Sociability group includes segments having scores ranging from 0.753 to 0.928; Medium Sociability group includes segments having scores ranging from 0.579 to 0.753; Low Sociability group segments have scores ranging from 0.404 to 0.579.

- **High sociability**

Seven segments with high sociability are primarily characterized by the presence of people. All segments have the presence of women and the presence of more than two groups of people (group means two or more members involved in a common activity). These segments mainly scored higher because of the different ages represented in the groups. Some segments have the presence of senior citizens, but only one segment has children present. Although segments of the high sociability do not include the presence of so many children and elderly people, the overall score is higher than in other segments due to the previously mentioned characteristics, which are even lower in the other segments. Generally, a percentage of the elderly and children in the city centre is much lower compared to other age groups.

- **Medium sociability**

Twelve segments have medium sociability. Each of these segments has the presence of women. However, most of these segments do not exhibit a presence of people in groups, or, if there is group of people, it is usually one group whose members have no diversity in ages. There are no people older than 65 years in these medium segments, while only three segments have the presence of children.

- **Low sociability**

Four segments have low sociability. These segments lack the presence of people, or if they are not completely empty, then people in these segments are alone; there is no presence of women, children and the elderly, and consequently there are no differences in age and gender.

1.2 Objective street environment

Number (2) on the map represents the level of street environment (Figure 1). The total 24 scores range from 0.383 to 0.981. The High Sociable Street Environment group includes segments having scores which range from 0.782 to 0.981; Medium Sociable Environment group includes segments having scores ranging from 0.582 to 0.782; Low Sociable Environment group segments scored from 0.383 to 0.582

- **High street environment**

Thirteen segments of the street have a high level of street environment. Those segments with a high street environment have generous sidewalks (more than three meters in width), a clean and well-maintained walking path with no parked cars that may hinder the people using the sidewalks. All these segments are surrounded by buildings that have no graffiti and are well-kept. The ground floors of these buildings are quite opaque, and it is possible to see the activities that take place within the buildings. Most of these segments have a high level of different facilities on ground floors and some presence of retail. In these segments there is no presence of alcoholics, beggars or other "unsavoury people". In most of these segments are some of the elements of street furniture such as lamps, baskets, fences etc. In more than half of these segments one can find restaurants and cafes with awnings and the possibility to sit. In segments where there are no restaurants there are benches to provide a place to sit. The presence of trees is more or less limited in all high level segments. However, greenery is presented in the form of shrubs or flower arrangements in all these segments.

- **Medium street environment**

Ten segments have a medium level of street environment. These segments do not have restaurants and cafes with possibility of sitting; and there also are no benches in medium street

environment. Some of these elements have "blank walls" and very little variation of the facilities on the ground floor (mainly one type of service). Medium segments of street do not have the presence of "unsavoury people", but also do not have the presence of street vendors or other street performances. Trees and flowers are present in almost all of medium street segments, but also a large number of segments have neglected vegetation. Although sidewalks in all segments are wide and clean, in some segments there are parked cars.

- **Low street environment**

Only one segment of street 1 has a low level of street environment. This segment mainly scored lower because of pathways blocked by cars, presence of neglected vegetation, and an absence of trees, shrubs or flowers. There are no benches or any street equipment. It is not possible to see the activities on the ground floors because they are vacant. There are no restaurants, street performances etc.

1.3   Assessment between sociability and street environment

By overlapping levels of sociability and levels of street environment it is possible to observe the causes of matching or mismatching on each segment of the street. This is because the analysis of both segments is in the same dimension. According to the cross table (Table 2), 10 out of 24 street segments are mutually consistent, of which one low street segment is overlapping with segment of low sociability, four middle street segments are overlapping with four middle sociability segments and five segments of high street environment are consistent with same five segments of high sociability. The remaining 14 segments do not coincide with each other.

Table 2 Mutual relation between segments of sociability and segments of street environment

Street 1

			Street environment			Total
			High	**Low**	**Medium**	
Sociability	**High**	Count	6	0	1	7
		% within Sociability	85.7%	0.0%	14.3%	100.0%
		% within Street environment	46.2%	0.0%	10.0%	29.2%
		% of Total	25.0%	0.0%	4.2%	29.2%
	Low	Count	0	1	3	4
		% within Sociability	0.0%	25.0%	75.0%	100.0%
		% within Street environment	0.0%	100.0%	30.0%	16.7%
		% of Total	0.0%	4.2%	12.5%	16.7%
	Medium	Count	7	0	6	13
		% within Sociability	53.8%	0.0%	46.2%	100.0%
		% within Street environment	53.8%	0.0%	60.0%	54.2%
		% of Total	29.2%	0.0%	25.0%	54.2%
Total		Count	13	1	10	24
		% within Sociability	54.2%	4.2%	41.7%	100.0%
		% within Street environment	100.0%	100.0%	100.0%	100.0%
		% of Total	54.2%	4.2%	41.7%	100.0%

- **High sociability**

Eight segments with high sociability occur in five segments of the high street environment and in three segments of the medium street environment. All segments of high sociability are characterized by the presence of some street furniture and the presence of flowers. These places have the most stationary activities related to sitting and chatting (Figure 3). Older people favour the benches although there are places to sit in cafes. A large number of users aged between 15 and 25 stop next to the window and comment. Also, the diversity of users in groups with respect to gender and age has also been seen partaking in similar activities. These groups of people are usually families. In this case, a high level of sociability corresponds with a medium level of street environments. Despite the fact that in these segments there are no seats and cars are parked on the pedestrian part, the results show that there is a diversity of users in the groups involved in joint activities. However, a more detailed analysis shows that those users are usually just passing through those segments, except for one group of people in front of the hotel. There is an interesting discrepancy between segments in the middle of the street. In all of the above segments, a certain level of sociability overlaps with the same level of street environment or with higher level of the street environment. In this case, a high level of sociability corresponds with a medium level of street environment (Figure 2). Hence, this suggests that high sociability in these segments is perhaps random and depends on the moment of observation because people are constantly moving. Furthermore, in this segment, there are not enough elements of the street environment to keep people longer.

- **Medium sociability**

Four segments of medium sociability coincide with four segments of medium street environment, while the other eight medium sociability segments coincides with eight segments of high street environment. These eight segments have the highest scores of the street environment. However, as medium sociability is characterized by sociability with medium diversity in gender and age, it means that these segments have characteristics that attract or repel certain social groups. An example is segment that has all the qualities of a high street environment, but few people actually spend time in this segment, and they are aged about 15 years. There is no presence of other ages. In this segment there are the benches, but their design limits the number of users. Benches are connected in a semi-circular shape surrounded by greenery and buildings. Benches are separated from the rest of the streets and "hidden" from the main part of the street. The benefit to this design and location is that it provides users with the setting for intimate moments. However, the size does not cater to a small number of people but is intended for more people. Thus, the excessive physical intimacy of strangers can deter other users if there is already someone using that space. This could be due to people feeling that they might interfere with a person's privacy if they join later. Basically, the 'hidden' places are characteristic of teenagers and, therefore, a place like this excludes other users. The rest of unmatched segments also show that certain elements of street environments exclude certain users, since there are no children and elderly. According to the analysis, although they have overall high level of sociable street environment, these segments do not meet the needs of specific users. The presence of flower vendors make the segment more attractive, but they are not as desirable to children who prefer street performers, for example. Also, in these segments there is a possibility of sitting, but only in cafes. There are no benches. Hence, pensioners due to monetary constraints-but also due to their age--avoid sitting in cafes that do not offer them an interesting and pleasant atmosphere. Cafes in this place are adapted to the younger generation in terms of music and services.

- **Low sociability**

In the first segment of the street, low sociability coincides with the low street environment (Figure 2). A poor urban environment influences people to avoid staying in such an area, so there is no presence of people in this street segment. Other low sociability segments are overlapping with medium levels of

street environments. The low sociability in these segments is reflected due to the small number of users who are alone and not interacting with other people and the absence of women, children and the elderly. People in these segments are passing through, and the reason for this can be seen in the elements of street environments. Medium street segments do not have benches and restaurants with chairs which would allow for sitting and keeping people in one place. Medium segment that offers the possibility of sitting in a cafe is without amenities such as umbrellas. These segments are characterized by the presence of trees and greenery, but it obviously does not play an important role in sociability. People do not even go under the trees (Figure 4).The few people who are found in these segments select the street side where there is quite a variety of services on the ground floors in comparison to the street side where there is only one type of service present and despite the fact that there are trees on that street part. The visual impact can also be the cause of low sociability in these segments because medium street environment is also characterized by the presence of neglected greenery. Finally, the cause of low sociability in these segments is mainly due to a low diversity of services on the ground floors, trees that do not provide shade above the benches, (because there are no benches), absence of public seating, unprotected sitting places and the presence of neglected greenery.

1.3   Overall results for street 1

According to the results it can be concluded that Street 1 has a medium to high street environment which should encourage sociability. However, the results indicate that the sociability that is going on there is predominantly medium. Looking at the overall level of the street, the relationship between these two objective measures is noticeable in terms of the diversity of people in terms of age. There are almost no children and old people. Also, the majority of users are in motion. A large number of these people are alone. The street environment, apart from some general characteristics, should have more elements that attract children and the elderly

Street 3 - Dunavska

2.   Street 3

The map of street 3 (Figure 5) represents the level of sociability (1) and level of street environment (2) in different segments of the Street 3. Different colours represent the different levels in both categories of measurement, where the red colour represents low level, the yellow colour represents medium level and the green colour represents a high level of sociability and street environment. Street 1 is 220m in length and has been divided into twenty two (22) segments, where each segment is scored according to the objective indicators of street environment and objective indicators of sociability.
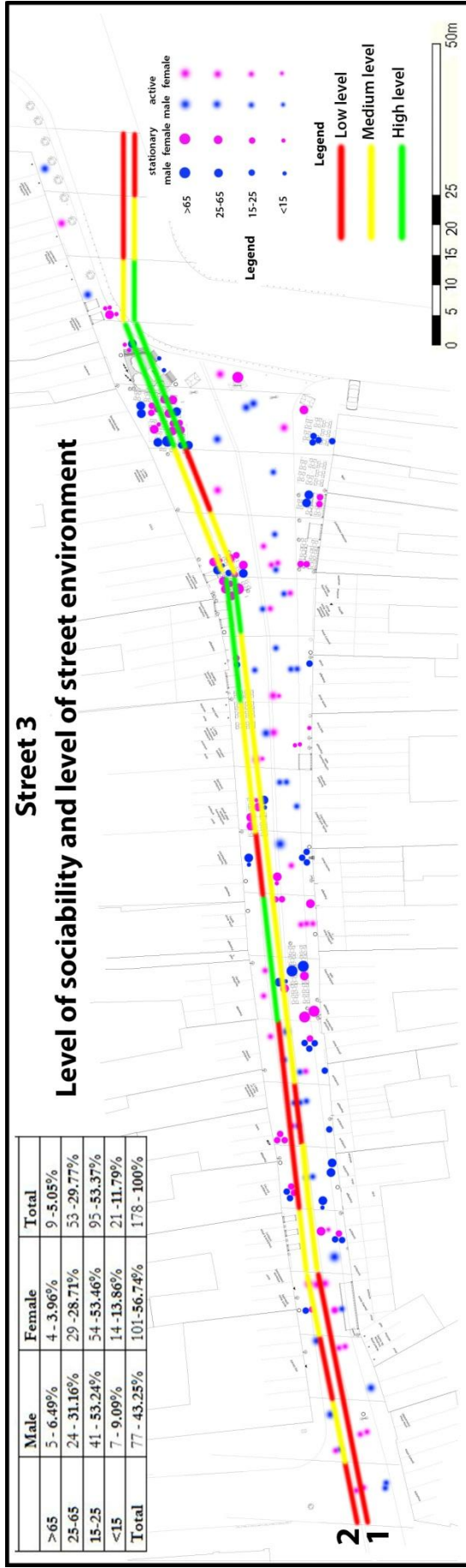
Figure 5 Street 3 map - Level of sociability (1) and level of street environment (2)

Figure 8 Increased segment-matches and mismatches

Figure 7 The elderly man sitting in pastry shops

Figure 6 Graffiti on buildings and the inability to see the activities on the ground.

2.1   Objective sociability

Number (1) on the Street 3 map (Figure 4-10) represents the level of sociability in different segments. These particular scores range from 0.333 to 1. The High Sociable Street Environment group includes segments having scores ranging from 0.777 to 1; the Medium Sociable Environment group includes segments having scores which range from 0.555 to 0.777; the Low Sociable Environment group includes segments scored from 0.333 to 0.555.

- **High sociability**

Four segments of high sociability are primarily characterized by the presence of people and women. All segments have the presence of more than two groups of people (a group means two or more members involved in a common activity). High level segments have more than two age groups. These segments mainly scored higher than the other segments because they have all of the features mentioned previously and with them,also always some of the following features: the presence of children or presence of the elderly or absence of people who are alone. However, although they have the greatest sociability there is no single segment that meets all of these criteria simultaneously. But in these segments the overall combination of criteria missing only one of the criteria. e.g. if there is presence of children and the elderly there is also the presence of people who are alone. Therefore, these segments are missing only one of the three mentioned characteristics, while all others characteristics are always present.

- **Medium sociability**

Eleven segments have medium sociability. As stated earlier for high sociability segments, these segments meet almost the same criteria, such as presence of presence of women and the presence of more than two groups of people (except one segment where are no groups, but overall score is on the edge, between low and medium) and a diverse age of people. These segments mainly scored lower than the segments with high sociability because they always have more than one combined negative elements in addition. For example simultaneously there is a lack of children and the elderly, or people who are alone in a segment with no presence of children and the elderly and so on.

- **Low sociability**

Seven segments have low sociability. These segments all have the presence of people. Still, those segments mainly scored lower due to the complete lack of children, the elderly and women, then the presence of only one age group of people, and because of the small number of groups of people

2.2   Objective street environment

Number (2) on the Street 3map (Figure 4-10) represents the level of street environment in different segments. Particular scores range from 0.479 to 1. The High Sociable Street Environment group includes segments having scores which range from 0.826 to 1; the Medium Sociable Environment group includes segments having scores ranging 0.653 to 0.826; and the Low Sociable Environment group includes segments scored from 0.479 to 0.653.

- **High street environment**

Six segments of the street have a high level of street environment. Those segments with a high street environment have generous sidewalks, paved, clean and well-maintained walking paths with no parked cars that may disrupt the people using the street. None of these objects require restoration. All segments have some quantity of urban furniture (bins, lamps, etc.). In all segments there are restaurants and bars with adequate canopies present. An interesting fact is that none of these segments does not have

the trees and greenery in the form of flowers or grass exists only in some parts. Benches are only found in one segment, and it is also the segment with the highest score. Other segments do not have the presence of all street characteristics. In each of them there is a "blank wall" or graffiti on a wall, or no street events Although some of the segments still lack some of the elements of street environment, the overall score of all street elements by segment is higher than the score for the overall score of street elements per segment for medium and low segments.

- **Medium street environment**

Eight segments have a medium level of street environment. Those segments with a high street environment have generous sidewalks, paved, clean and well-maintained walking paths with no parked cars that may affect the people using the street. In comparison to segments with higher street environment segments, these segments have higher absence of positive street characteristics and presence of negative street characteristics in overall combination for each segment individually. For example, in certain segments there is restaurant, but diversity of facilities is very small and it is not possible to see the activities taking place on the ground floor (Figure 6).

- **Low street environment**

Eight segments of street 2 has a low level of street environment. These segments mainly scored lower because segments have no the option of sitting, either on public benches or in restaurants. There is no diversity of facilities on the ground floors. There is no protection from the sun, in terms of trees or canopies. Also, some of the segments have no special street events taking place. Compared to the segments with larger scores, these segments have the highest absence of positive street elements and presence of negative elements in overall combination per street segment.

2.3   Assessment between street environment and sociability

By overlapping levels of sociability and levels of street environment, it is possible to observe the causes of matching or mismatching on each segment of the Street 3. According to the Table 3, half of the street segments out of twenty-two (22) segments are mutually consistent, of which three segments of high street environment are consistent with same three segments of high sociability, four medium street segments are overlapping with four medium sociability segments and four low street segments are overlapping with four segments of low sociability. The remaining eleven (11) segments do not coincide with each other.

Table 3 Mutual relation between segments of sociability and segments of street environment

Street 3

			Street environment			Total
			High	Low	Medium	
Sociability	High	Count	3	0	1	4
		% within Sociability	75.0%	0.0%	25.0%	100.0%
		% within Street environment	50.0%	0.0%	12.5%	18.2%
		% of Total	13.6%	0.0%	4.5%	18.2%
	Low	Count	0	4	3	7
		% within Sociability	0.0%	57.1%	42.9%	100.0%
		% within Street environment	0.0%	50.0%	37.5%	31.8%
		% of Total	0.0%	18.2%	13.6%	31.8%
	Medium	Count	3	4	4	11
		% within Sociability	27.3%	36.4%	36.4%	100.0%
		% within Street environment	50.0%	50.0%	50.0%	50.0%
		% of Total	13.6%	18.2%	18.2%	50.0%
Total		Count	6	8	8	22
		% within Sociability	27.3%	36.4%	36.4%	100.0%
		% within Street environment	100.0%	100.0%	100.0%	100.0%
		% of Total	27.3%	36.4%	36.4%	100.0%

- **High sociability**

The number of segments with high sociability is quite small compared to other segments. All segments of high sociability take place in segments of the high street environment, whose number is also significantly lower in relation to the medium and low street environment segments of the street. This shows that these segments provide the best conditions for the sociability of all kinds of age groups and various forms of interaction. Segments of high street environment also provide facilities that are interesting to children (Figure 8). The monument is a place around which a significant amount of children was noticed. The monument in the street also has a function of a "toy" (an element that is already specified as triangulation). Contact between children is achieved through a "third" object. Also around the monument are the only benches and only green space in the street. It also indicates that children are most attracted to some unique elements in the street. At the same time, the presence of all of these street elements contribute to this segment having a high street environment. Therefore, it can be concluded that in addition to unique elements that attract children's attention, a space in which children spend time on the street requires a high quality environment that meets other needs, e.g. safety, physical comfort, environmental comfort, etc. As already stated, all segments of the high street environment in street 3 are characterized by the presence of restaurants with the possibility of outside searing. Restaurants are the places where there is the largest interaction between people. Much more of the people in these segments are sitting in restaurants rather than moving or performing something else. In these restaurants are people of different ages, including the elderly. They mainly serve food and people come for that reason. In fact, most of the guests of the restaurant looked like families. Therefore, the atmosphere in these places is quite intimate. This indicates that the restaurant's design and atmosphere usually cater to family gatherings.

Although the number of benches is limited in the street, elderly people do not use them. The elderly prefer to sit in restaurants (Figure 7). This can be explained by the fact that the atmosphere at these restaurants is pleasant for them. The presence of other elderly people in the same location allows them to feel comfortable and as part of the same group. Thus, if the bars are adapted to their age, the elderly prefer to sit there than on the benches.

- **Medium sociability**

People between 15 and 25 years also select bars and restaurants where there are people of a similar age. Therefore, it is observed that people in this age group do not sit in bars whose guests are much older than them. This non-diversity in ages is characteristic of segments of medium sociability. People aged between 15 and 25 years in street 3 usually do not sit in cafes, probably because these are mostly places to eat and they are usually observed to drink and not to eat in places like this. Besides that, this age group was not observed to sit in cafes and they are most often observed only in passing through the street. A group of students was observed standing and talking about the building in the street, while other stationary activities of these people involved buying food at the fast food shop. Segments where those stationary activities are taking place are segments with low street environment. In fact, there is no diversity of facilities on the ground floors of buildings, no street furniture, no bars, benches, etc. The level of sociability is for one category higher than the street environment. This is because people in these segments are there because of the necessary reasons; they have to be there or do not have better choice in a particular moment. For example, only fast food is in the segment of low street environment, and thus the only place where it is possible to buy food.

- **Low sociability**

Four low sociability segments coincide with the four low street environment segments. Poor urban environment influences people to avoid staying in such environment, so there is rarely the presence of people who are just "in passing". Although there is a restaurant and the opportunity for people to sit, very few people actually sit there and most people are alone and rush somewhere else. This indicates that a considerable number of users use this street just as the passage to travel to a certain destination and not simply for pleasant walk.

2.4   Overall results for street 3

According to results street 3 has the same number of segments of medium and low street environment, while the number of segments of high street environment is less. Therefore, it can be concluded that the street has low to medium street environment. The situation in terms of sociability is similar. The largest number of segments have medium sociability, followed by segments of low sociability, and finally the smallest number of segments with high sociability. In general, the comparison of the street environment and sociability indicates that Street 3 does not have a good street environment in terms of encouraging sociability, as shown by the results of sociability. In both cases, medium and low levels are over-represented compared to a high level. The relationship between these two objective measures is noticeable in terms of the diversity of people in terms of age. The presence of children and the elderly is significantly limited compared to other age groups.

Although there are a limited number of seats in the whole street, this possibility has not been fully exploited and some of existing bars are either half empty or completely empty. The reason why the bar is completely empty can be sought in the fact that it is not attractive enough for any user group. The bar does not offer the possibility of a meal and automatically excludes customers who aim to eat (most common of people who sit in bars because of a meal are people between 25 and 65 years). People aged between 15 and 25 years old otherwise choose the places where this possibility is not necessary, but in this

case they avoid this bar because it does not have any music and it is too quiet. This age group chooses bars where there are crowds and where they can hear music and people speaking. People in this age group usually just pass through the street. Unlike them, people age between 25 and 65 and older than 65 years more frequently sit in the restaurants on this street. Street environment apart from some general characteristics should have more elements that attract more children and elderly. Also, this street should have more street characteristics that are interesting to groups of people between 15 and 25 years, elements that will attract and keep them to stay in a street, not only just to pass through.