

Special Issue: "Selected Papers from 12th International Conference of the Hellenic Geographical Society (ICHGS): Innovative Geographies II, 2019"

Mental maps and representations of the city centre of Thessaloniki: Inhabitants' perceptions and stereotypes of the urban landscape and daily mobility

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Keywords:

Mental mapping,
citizen perceptions,
urban landscape,
daily mobility,
Thessaloniki, ICHGS-
2019

Abstract

Mental maps are the type of maps that everyone creates in their minds to orient themselves in space. The orienting process takes place on a daily basis, mostly unconsciously. Even the citizens of the same city tend to perceive urban space differently, emphasizing on different parts of the city, as their perceptions reflect their lifestyle, habits, preferences, experiences, but mostly the feelings that the space itself provokes to them. Human-centered factors, such as mental capacity, memories, emotional state, age, gender, as well as social-cultural ones, such as social media influences and prejudices, have a great significance on mental mapping. Inspired by Kevin Lynch (1960) and Jack Nasar (1990), this paper analyzes the center of Thessaloniki, through information and mental maps gathered from 50 interviews with residents, both men and women from different age groups and a range of social classes. The analysis traces the features that attract (e.g. the water element) or repel (e.g. the presence of marginalized groups) the inhabitants of Thessaloniki, their feelings (e.g. insecurity) and the daily routes they follow for various activities. It attempts to identify their common but also different perceptions of the city, the stereotypes, prejudices and their origins. However, the most important role seems to be played by the experiences that each person has lived in specific places. Finally, apart from being unique products that reveal each person's intimate thoughts about space, mental maps constitute a useful tool to discover the image held by the inhabitants of a city in order to promote its sustainable development.



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1. INTRODUCTION

“Mental map” is a term that usually refers to the mental or cognitive image of an environment that is held by an individual or a group (Pocock, 1976). They are map-like products that reveal our knowledge as much as our deeper thoughts about the world. One of the most important benefits that mental maps can provide, is the capacity to carry information about the feelings, attitudes and perception that the features of space provoke (Bell, 2009; Sakaja, 2020).

In other words, a map that is composed of words, feelings and images, is usually called a mental map. It is a technique for people to organize in their brain huge amounts of data about their surroundings and store them in a simple way for later retrieval, in order to navigate in space. It is a combination of information about certain elements of the environment as well as their spatial relationships and everyone subconsciously prioritizes them according to their personal experiences. Also, the level of spatial knowledge a person has, depends on the various levels of interaction with the built environment in addition to the different level of interest in learning it in depth. That is why even people who live in the same area or members of the same family, do not have identical remembered maps. Each mental map is unique and personal. It is a product of selective representation of reality (Weston & Handy, 2004), although there is some degree of isomorphism between the physical world and our mental representations (Zimring & Dalton, 2003). Mental mapping is a way to explore what is in the external world but mostly to find out what is inside a person (Soini, 2001). “Cognitive mapping is a process composed of a series of psychological transformations by which an individual acquires, codes, stores, recalls and decodes information about the relative locations and attributes of phenomena in his everyday spatial environment” (Downs & Stea, 2011; 312).

Two are the main categories of factors that affect the composition of a cognitive map: (a) anthropocentric factors, namely the mental capability, the memories and the emotional state (such as anxiety), the age, the gender etc. (Lawton & Kállai, 2002; Soini, 2001; O’Laughlin & Brubaker, 1998; Blaut & Stea, 1974; James & Kimura, 1997; Bosco et al., 2004) and (b) social and cultural factors, such as the role of prejudices, the stigmatization of groups of people, the role of the media etc. (Sorin Matei, Sandra J. Ball-Rokeach & Jack Linchuan Qiu, 2001; Gould & White, 1974; Sulsters, 2005). In other words, people can be easily affected by the media or their social circle and e.g. feel a sense of insecurity in a place, often because of rumors and prejudice rather than crime actually taking place there, etc.

Lynch (1960), concentrated his study on the environmental image, especially on the image of the city. He focused on discovering a “public image”, which is “the common mental pictures carried by large numbers of a city's inhabitants” (Lynch, 1960; 7). He tried to clarify the elements of the environment that are easy to memorize and their imageability. Therefore, he concluded that the city images are consisted of five types of elements: paths (streets, walkways, transit lines etc.), edges (shores, railroad cuts, edges of development etc.), districts, nodes (junctions, squares, street corners) and landmarks (building, sign, store etc.) (Lynch, 1960; 46). A city including these elements is legible as it offers visual pleasure, emotional security in addition to the possibility of intense human experiences (Topcu & Topcu, 2012).

On the other hand, Nasar (1990) focused on discovering the importance of people’s evaluation of the cityscape. He claimed that a person will remember the elements that

have evoked strong feelings (both positive and negative) to them and there is a high possibility these will be the imageable parts of the city. He concentrated on identifying the areas that the residents like and dislike optically. He suggested that planners can target specific problems in specific places to improve the city's appearance (Topcu & Topcu, 2012).

Furthermore, den Besten (2010) studied immigrant children's emotional experience of their neighborhoods through mental maps drawn by the children themselves. They were asked to express the feelings the objects they added on their sketch map provoke to them, in a positive or negative way. The mental maps reflected on their experiences and activities associated with space, their social class and opportunities (for education etc.) but also the prejudices that students have about upper/lower social classes and areas as well as the fears and opinions that their parents have passed to them.

Based on the theoretical background sketched above, this paper analyses residents' representations and perceptions of the centre of Thessaloniki (Bartzokas-Tsiompras et al., 2021) primarily through mental maps as well as a structured questionnaire. This process aims to help urban designers collect the inhabitants' preferences and aversions of space in Thessaloniki and create successful and livable urban spaces, that its residents will enjoy, feel comfortable and safe and navigate successfully (Devlin, 2001; Topcu & Topcu, 2012).

The paper is divided into three sections: The first section "Material and Methods" presents the study area of Thessaloniki and the research methodology concerning the mental maps design process as well as the sample survey selection and characteristics. The second section "Results" includes the analysis of the main findings and finally, the third section is the "Conclusions" of the research.

2. MATERIALS AND METHODS

Thessaloniki is the second largest city in Greece as well as the second major economic, industrial, commercial, health, cultural, recreational, educational and political center of the country, after Athens (Gemenetzi, 2016; YPEKA, 2015). The Municipality's permanent population was 325,182 residents in 2011, within a Metropolitan area with a population of about a million.

In terms of the spatial structure and the geography of the urban economy, the city centre is compact and is characterized by high densities and mixed land-use, concentrating various types of services and commercial activities, along with a plethora of leisure options and tourism. The western part historically concentrates manufacturing, wholesaling and transport activities (e.g. port, the bus and train stations), thus the physiognomy of western districts is associated with lower quality of life and cheaper land values with higher proportions of low- middle classes, people of labor, and immigrants among their residents. The eastern areas are considered to be of higher living standards, as they are usually favored by middle- and upper- class people, while lately, they have attracted a lot of productive services, public but mainly private, such as educational institutions, research centers, private hospitals and all kinds of business activities (Giannakou, 2013; YPEKA, 2015).

The study is based on a sample of 50 residents of Thessaloniki. According to Nasar (1990), it is advisable to give greater emphasis on the inhabitants of the area being

analyzed, as its inhabitants are those who will be directly affected. Therefore, 50% of the sample live in the centre of Thessaloniki while 25% live in the eastern part and 25% in the western part. Also, the sample was divided as equally as possible regarding age and sex. The respondents belonged to a wide socio-economic spectrum, which is reflected in each group's preferences as well as in their habits. In addition, 92% of the sample were Greeks.

The interviews lasted from 15 minutes to 2 hours and was divided in two parts: Firstly, the 50 respondents were asked to draw their mental map of the center of Thessaloniki and designate the "five elements of space" on it. Specifically, they had to illustrate the edges, districts, landmarks on their sketch-map and later they were given a base map of the centre of Thessaloniki, to highlight the nodes and paths, inspired by Lynch (1960). Next, they were asked to express, through painting on their map, the feelings that the districts and landmarks provoke to them, inspired by Nasar's (1990) and den Besten's (2010) researches, using different colors to categorize them as: Favorite, Liked, Disliked and Most Dangerous. Finally, the respondents had to describe analytically why they mentioned specific districts, paths or landmarks in the city centre, which they have undesirable emotions or a negative opinion about them and the reasons why. This question aims to find out if the explanations related to unpleasant personal experiences or if people got affected by prejudices the media disseminate and rumors spread by their social circle.

The second part was a structured questionnaire with four multiple choice questions in order to identify the Strengths, Weaknesses, Opportunities and Threats of Thessaloniki (SWOT). There were, also, a few questions about the participants' personal information, such as sex, age group, country of origin, district of permanent residence, level of education, job category, income and the means of transport they use the most in Thessaloniki.

3. RESULTS

The main results of the research are focused on the representations of the perceptions that the users of the centre of Thessaloniki have, based on the elements that Lynch (1960) has suggested: edges, districts, landmarks, nodes and paths.

The edges of the city centre appear to be a controversial issue as every resident perceives them differently and they are believed to be ambiguous (see Figures 1 & Appendix, Figure 2). Many factors can affect the way that somebody mentally sets the centre-borders, such as age, the district of permanent residence, their usual destinations, their habits, their memories, the reasons they visit the centre, but also the means of transportation they use to reach the heart of the city. However, the highest percentage of the participants declared as the main edges those that are deemed to be the primary arterial roads surrounding the historical city core anyway. Some commented that they selected these because of the sudden change in the quality of the urban environment, land-uses, people, etc. This observation can be related to Lynch's (1960) theory, who believed that the edges could be the boundaries between two kinds of areas and can be easily reflected in the different characteristics of each, such as facades and height of buildings, different land uses, or people of different social classes.

With respect to the districts, the favorite and liked areas were selected because of their proximity with the green areas and the sea, the beautiful parks and

playgrounds, the well- preserved buildings and their aesthetic appeal, the cultural and historic monuments, the wide and clean pedestrian streets with the benches to rest, but also, because they are central, crowded and with nice views. There is a wide range of shops, from luxurious to affordable, cafeterias and restaurants. Some teenagers emphasized that they enjoy spending time at those areas because they don't have to spend money and they are great meeting places because "everybody knows them". Furthermore, some east-side residents admitted that these are the only places they visit when they leave the eastern part of the city while some people from the western districts believe that "whoever walks to these places, can realize the real quality of the city life". It is obvious here that people from upper and middle-class districts in the east tend to belittle or not prefer the centre while the residents of the less privileged districts in the west, tend to eulogize it. Also, some participants mentioned that one of their favorite areas in the centre is the place they live, as they feel comfortable and safe but also because of emotional reasons, (e.g. pleasant experiences and memories with people they love). The only difference between "Favorite" and "Liked Districts" was that people had an emotional bonding with the former, while their answers on the latter were without sentimentalism.



Figures 1: Examples of the Mental Maps, Source: Papaioannou (2018)

The main and most common complains concerning the "Disliked Districts" had to do with the never ending Metro projects, the narrow streets and pavements amidst too high buildings, the lack of open urban space, cleanliness and adequate lighting, the unpleasant odors, the loud noise, the abandoned stores, the low quality of space and

land value of the area, but mostly because of the high visibility in the concentration of marginal groups (such as homeless people, immigrants, drug addicts or alcoholics) and activities (such as illegal drug trade, street peddling of smuggled goods and human trafficking).

Furthermore, the “Most Dangerous Districts” were described similarly to the above category, but people here focused more on the high levels of (perceived) criminality taking place there. They shared their own unpleasant experiences, which most of the times were insignificant incidents such as threats, arguments or fights and minor thefts. However, most admitted that they have not been in front of a crime scene at all, but have heard rumors either from their friendly and family environment or in the media about incidents causing them anxiety, fear and insecurity and have completely reconsidered their visits there.

Regarding the landmarks, most of the participants pointed out leisure venues, places of worship, historic monuments in central places and of course their home or the homes of loved ones. The favorite landmarks that were chosen were places that people have memories, places they frequent with their loved ones, places they would choose to go when they are emotionally charged (happy or sad), places that matter to them and they feel connected to because of personal and beautiful experiences.

Next, many attendees highlighted as “Liked Landmarks” leisure venues they enjoy and have beautiful memories or because of their remarkable architecture, but with less enthusiasm than the one they had for their favorite landmarks. Subsequently, historical monuments of timeless value for the city were selected, which are also used as meeting points.

The most unpleasant landmarks relate once again to locations that have been defamed by marginal activities or groups of people, shops or hospitals where participants have unpleasant memories, anti-aesthetic buildings and the construction of the underground Metro that are seen only as obstacles for drivers as well as pedestrians.

Besides, it seems that the most dangerous landmarks/points are locations where respondents had traumatic experiences or were eyewitnesses of an incident that has shocked them to such a degree that they remember it every time they pass through these areas. Also, they pointed out specific places where marginal activities take place (illegal drug trade and human trafficking). Based on the results of the research it can be concluded that although in some cases a harmful incident is expected in certain areas of the city, many of the events reported during the interviews took place at unexpected places.

The nodes pointed out by the participants reflect their habits and priorities. Specifically, drivers were mainly referring to transportation nodes while teenagers chose meeting places with their friends. Generally, the most important nodes for the residents of Thessaloniki are squares, intersections of main streets, historical monuments and cultural heritage, leisure districts with lots of restaurants, cafeterias, pubs etc., commercial streets, shopping malls and generally easily accessible meeting points, mostly because of the concentration of people and specific land uses and activities. In a few words, places that are considered as “the heart of Thessaloniki” (see Appendix, Figures 3 & 4).

Finally, the paths were divided into four categories. The “Most Pleasant Paths” were the ones that people enjoy walking on because of the spacious streets or pedestrian paths, nature views, such as Thermaikos Gulf and the green spaces, historic and cultural

heritage, a wide range of shops, the presence of many people and the “beautiful atmosphere” they provoke (see Appendix, Figures 3 & 4).

The paths for “Entertainment and Leisure” were the streets where the places participants frequent are located or the ones they walk when they want to wander in the city centre. Looking closer at the preferable destinations in relation to age, it was found that the younger the age, the more they visit public places to sit around with their friends at no cost (e.g. Agias Sofias Square or the seaside Promenade) or they consider shopping as their entrainment (e.g. Tsimiski). On the other hand, the older age groups seemed to enjoy the taverns at Ladadika or bars and cafes at Leoforos Nikis, streets that the youth seem to avoid because of the high prices. It is interesting that at this stage, people separated “Leoforos Nikis” and the seaside Promenade (“Paralia”, as they chose the former mostly because of the leisure venues and the latter when they just want to walk around or sit on public benches.

The “Most Popular Paths for Shopping in the Centre” were chosen according to the economic situation or the age of participants. However, Tsimiski Str. reached a percentage of 84%, being considered as the most preferable street to shop because of the wide range and number of shops where customers can easily compare the quality and cost of the products. Also, as many responded, Tsimiski is a self-contained street and “you can find everything and in little time”.

Furthermore, Tsimiski was chosen by people from every social class, while Egnatia was favored by students and people with the highest annual income tended to choose Mitropoleos.

Once again, the “Most Dangerous Paths” were the streets where marginal activities take place and many migrants circulate, while there is insufficient lighting and policing. The responses did not differ significantly from those given at the “Dangerous Areas/Landmarks” as most people consider them dangerous even without an unpleasant personal experience.

The second part of the residents’ interview concerned the selection and ranking from 1 (less important) to 5 (very important) of the following issues: the 5 most important weaknesses of Thessaloniki, the 5 major issues strengths of the city, the 5 major threats and the 5 most important opportunities in the field of spatial planning and transport as well as sustainable urban development (environment, society, economy). The five most predominant answers in function of the score weighted average (W.A.) are presented in a form of SWOT analysis on Table 1. It appears that the representations of the mental maps that the participants designed, were also reflected in their responses to the questionnaires.

Lastly, some 38% of the participants were anxious about the procedure so they hesitated to draw their mental maps, because as they explained, “they don’t draw well enough” or “they don’t know how to draw”. Males and females reacted similarly in that respect, even though there are studies showing that women tend to feel more insecure during the process of mental mapping and are not sure about themselves nor their spatial knowledge. However, this could be a result of social fabrications and prejudices that women have been subjected to. Females appear to have less expectations of finding a way, because of stereotypes, as this process is mostly regarded as a “male’s concern” (James & Kimura, 1997).

Table 1: SWOT

a/ a	S	W	W.A.	O	W.A.	T	W.A.
	Strengths	Weaknesses		Opportunities		Threats	
1	Sea element (Thermaikos Gulf)	Garbage, odors and stray animals	3.56	Promotion and development of the historic & cultural tradition of Thessaloniki	3.42	Areas degradation due to the presence of marginal activities (human and drug trafficking)	3.58
2	Pedestrian streets & Squares	Presence of drug users	3.25	Public transport integration and development of the metro and track-based transport modes	3.23	Delay in the metro construction, causing economic disturbance in the stations surrounding areas	3.21
3	Historic & Cultural Monuments	Illegal drug trade	3.44	Urban regeneration & project for public space upgrade	3.19	Lack of urban resilience due to extreme climate conditions & lack of appropriate infrastructure	3.13
4	High density and mixed land use urban space	Lack of police enforcement	3.08	Upgrade of the Higher Education in order to attract more students, even foreigners	3.25	Lack of financial resources and development investment	2.49
5	High offer of leisure/entertainment options and gastronomic tourism	Lack of parking spaces	2.89	Exploitation of the urban morphology and the natural environment of Thessaloniki	3.15	Lack of financial resources and development investment	2.88

Source: Papaioannou (2018)

4. CONCLUSIONS

Mental mapping is a method of reflecting on the way that each person perceives space in order to orient in it. It takes place unconsciously and on a daily basis. It is never completely accurate as it is a selective representation of reality. A mental map can reveal the perceptions, feelings and attitudes about a particular place, and it is as unique as a person's personality.

The results drawn from this research were as expected. Firstly, it turned out that the mental maps each resident of Thessaloniki has created in their brain often differ depending on their age, gender and area of residence. However, it is easy to identify

common perceived characteristics that reveal whether there is a similar lifestyle, common interests, degree of familiarity with the study area, level of affordability etc. (Sulsters, 2005).

Furthermore, the elements that attract the residents in Thessaloniki appear to be the naturalness and specifically the Thermaikos Gulf and green areas, the spacious squares (openness) and sidewalks, the order, upkeep and cleanliness as well as the historic and cultural heritage of the city, as Nasar (1990) had already clarified. However, it is confirmed that the most important role is played by the memories and experiences a person has associated with parts of the city, which determine how they perceive its overall image.

Moreover, the features that repel the residents of Thessaloniki are mainly related to the presence of marginalized groups and activities, lack of cleanliness and adequate lighting. It also verifies theoretical approaches to social prejudice and stereotypes affecting individuals, which can be diffused and magnified uncritically among both family and friends as well as the in the wider social environment. On the contrary, the reasons may be xenophobia and more generally the human fear of the different and the unknown, the influence that the media have, as well as the personal contacts of the individual. It is easy for a person to be influenced by people they trust and accept their beliefs without the process of filtering or without discovering and rejecting by themselves and this can easily lead to absorbing other people's opinions.

The problems that arose during the survey mainly relate to the variety of the answers given by the 50 respondents during the interviews. First of all, there was a difficulty for the participants to understand the terminology of the interview, even though the differences between the similar terms were explained as clearly as possible (for example they were confused in identifying the difference between the districts and the landmarks).

Furthermore, each participant shared their personal experiences, preferences, and feelings about elements of the centre of Thessaloniki, which in some cases were difficult to group.

Another interesting finding was that each mental map reflects the social class or the economic status of the participants. There are many ways to identify that; for instance, this observation can be proved by the area of their permanent residence, the means of transportation they mainly use, the chosen places for their entertainment or the preferred streets for shopping. It should also be mentioned here that each citizen visits the city centre on a different frequency. This depends on how satisfied they are with their neighborhood's ability to cover their needs and how far their residence is from the city centre.

In addition, all these factors affect the level of spatial knowledge they have for the city centre of Thessaloniki too. This can be revealed by the quantity and the type of the elements they mentioned in their mental maps; for example, the citizens that usually explore the city on foot tend to pay more attention to the landmarks (shops or meeting places), when the citizens that travel by car are usually more familiar with the paths (streets etc.) and the nodes of the city. However, the people that use the public transportation to reach the city centre, can perceive the connections between the landmarks and the streets in a better way. They can also understand the edges of the districts they pass through during their travel and they can tell more easily the differences between the areas.

It was also found that even though everyone perceives the city center quite differently, focusing on other places or areas, eventually the greater percentage praised or complained about the same characteristics.

Lastly, the paper focused on the mental and psychological approaches of space that are of great importance for urban planning (Topcu & Topcu, 2012). Mental maps are useful tools for analyzing space as it is shown that even though they understand the center of Thessaloniki from their own point of view, residents are interested in their city and they suggest common solutions for its development. Finally, even though the results of the research are rather obvious, the evaluation of the mental maps upon which the residents of Thessaloniki reflected their preferences and expectations can support creatively the processes and practices of urban planning.

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APPENDIX

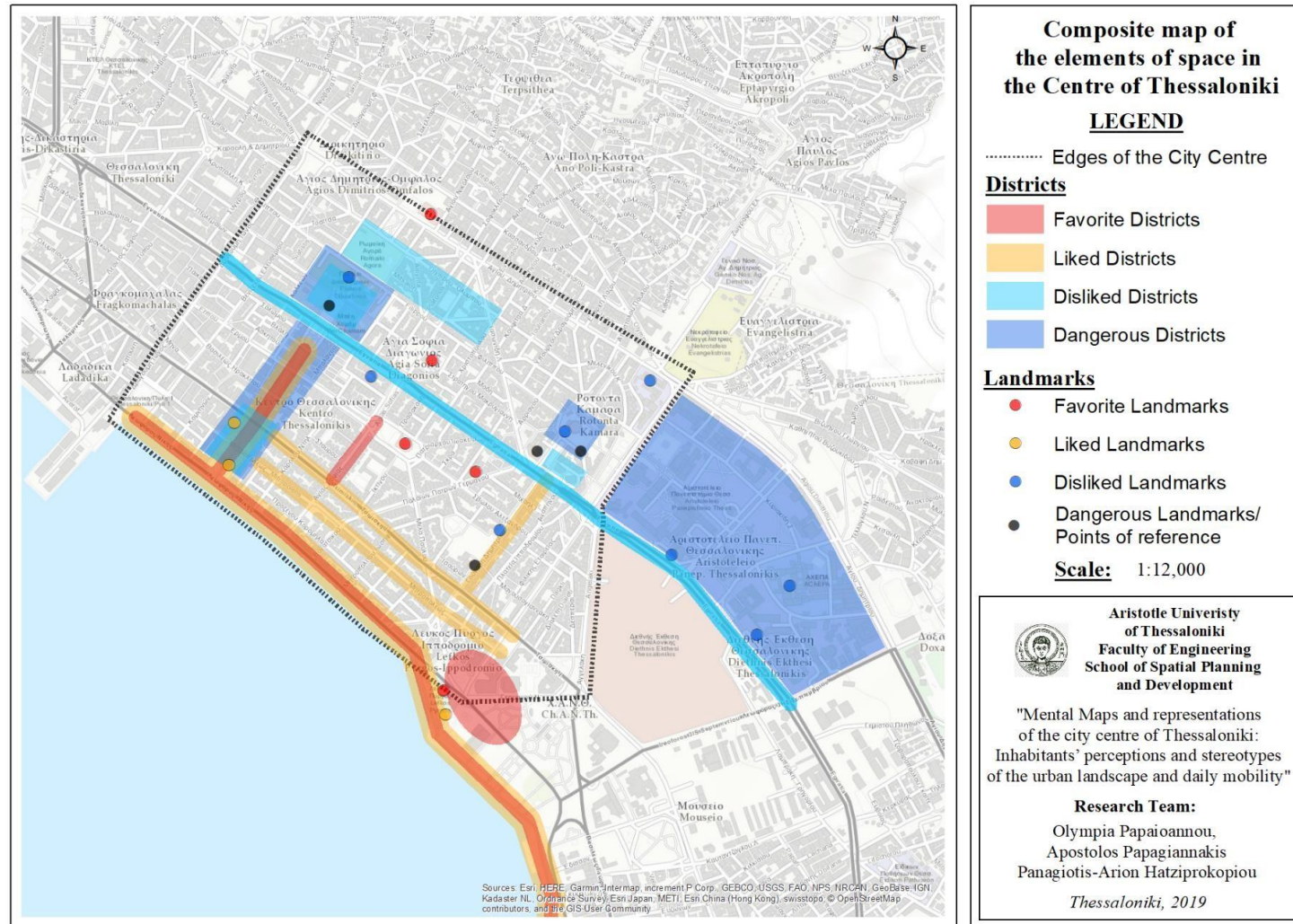


Figure 2: Citizen's perceptions map (edge, districts and landmarks)

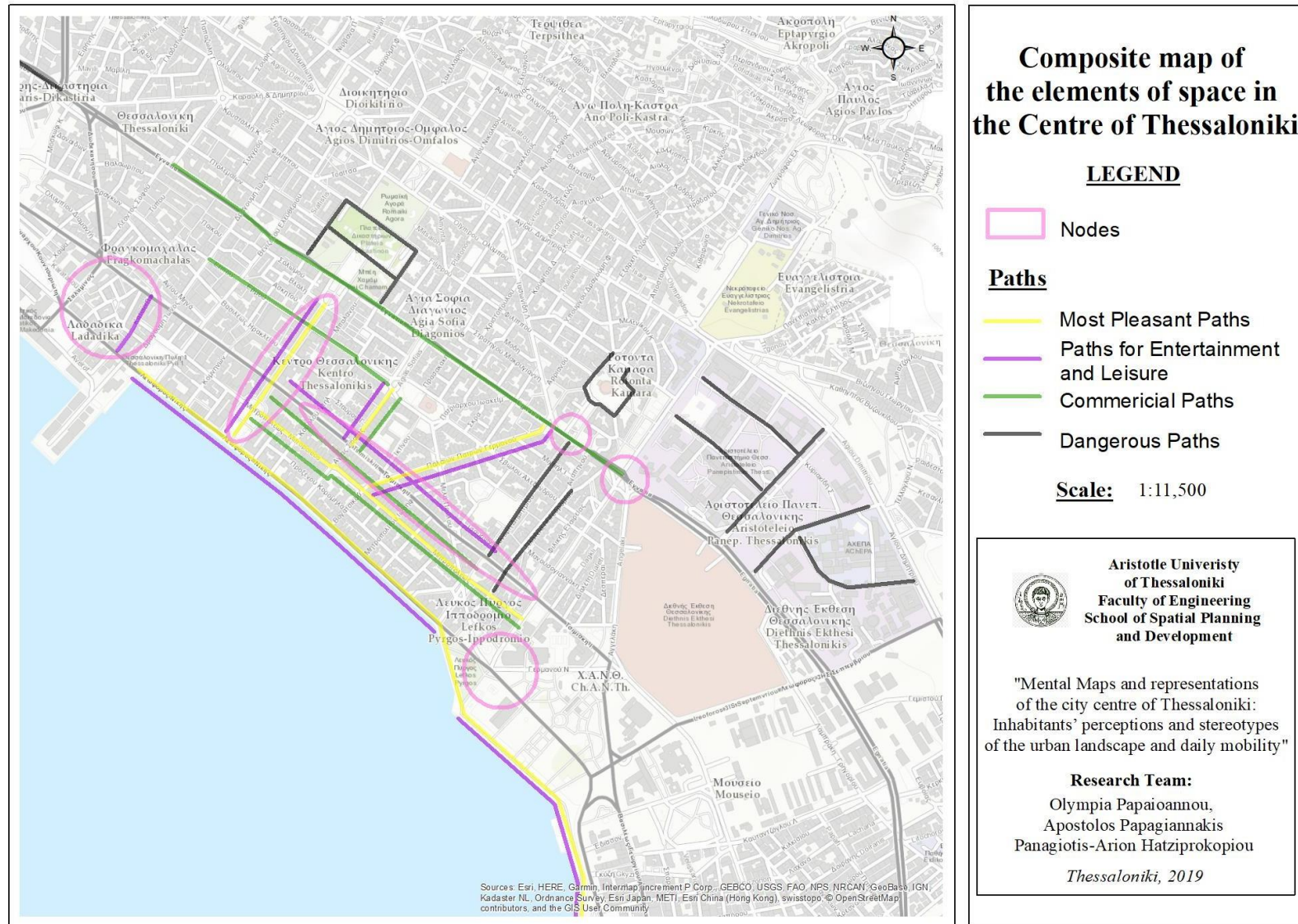
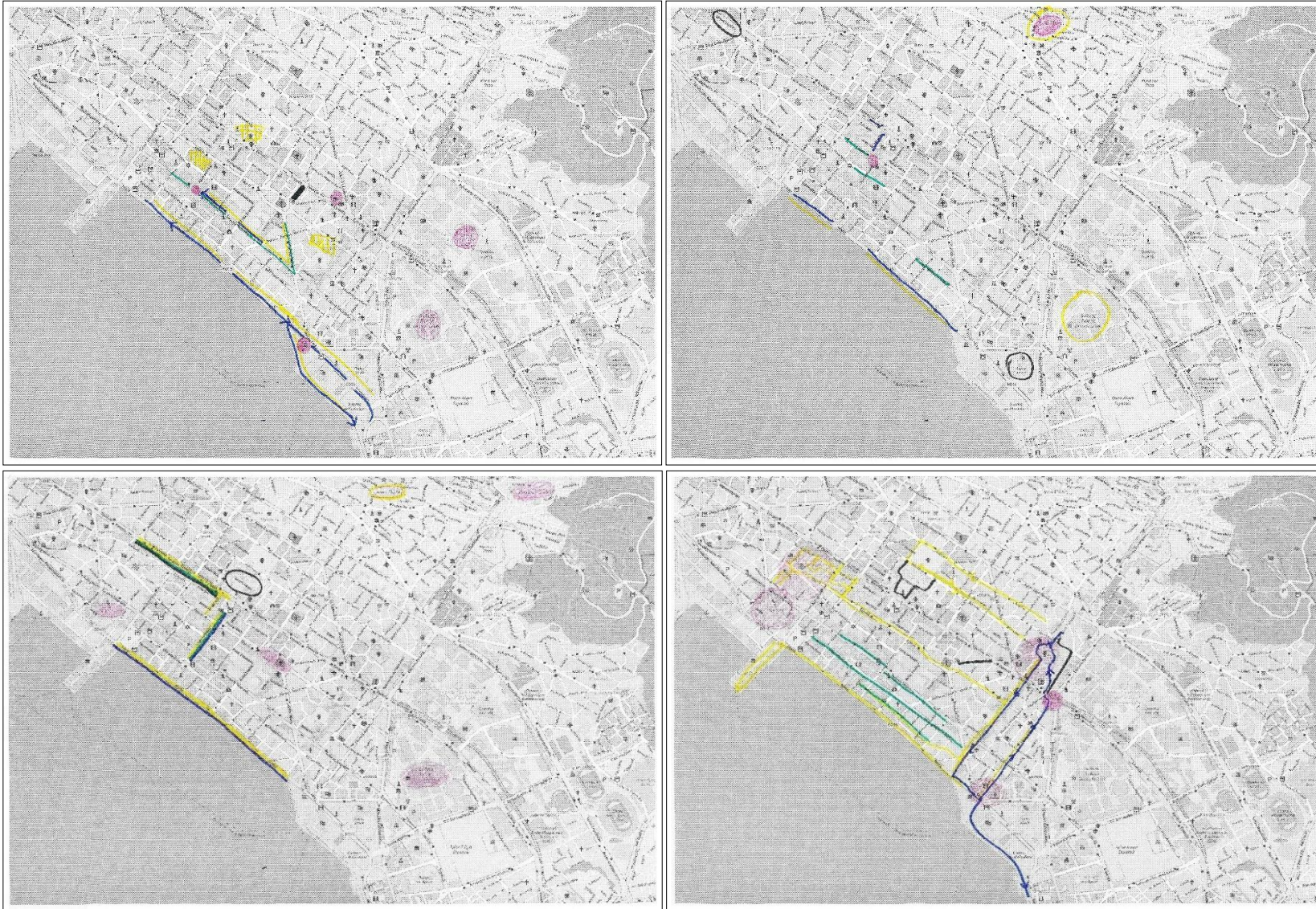


Figure 3: Citizen's perceptions map (nodes and paths)



Figures 4: Examples of the Mental Maps, Source: Papaioannou (2018)