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ADJUSTMENT TO UNIVERSITY AND SPATIAL ENVIRONMENT PERCEPTION BY STUDENTS

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Abstract

The article presents the results of the study of correlation between the perception of urban space and the adjustment to the university life among first-year students of the Pedagogical University. The adjustment to the university life was also studied using the feedback form the Adjustment to University and the perception of urban space was studied based on the method of research of cognitive maps according to S. Milgram. The images created by students, called the cognitive maps, can be divided into several types according to the subjective organization of space, i.e. geographical, topographic, fragmentary. It was revealed that the adjustment to the university and the nature of the subjective organization of spatial information were related. A higher level of adjustment is associated with a greater number of objects depicted by students. As for the reasons of the revealed connections, various explanations are possible. On the one hand, those students who adjust better, participate more actively in the public life, visit a wider range of city objects using the city maps on regular basis. As a result, the image of the city in their minds becomes more holistic and geographically defined. However, the connection can also be inverse: A high level of spatial information structuring can be associated with a higher level of intelligence and information culture of the individual, which allows him or her to better adjust to the new environment. It is possible that both explanations are fair in their own way and the correlation is of two-way nature.

Keywords: Cognitive maps, mental maps, space perception, city image

1. Introduction

Recently there has been a rapid increase in the role of cities, urban culture, and the development of society. The city is a complex social organism with both social characteristics and spatial localization. Studies of the subjective perception of the spatial environment of the city have deep traditions, starting with the works of K. Lynch, S. Milgram and other researchers. However, the problem of the correlation between the perception of urban space and social adaptation in the urban environment has not yet been posed in the scientific literature. Adaptation to an urban environment is often accompanied by severe psychological stress. Adjustment difficulties often arise among first-year students who experience significant changes in their environment and lifestyle. This paper studies of the adjustment and perception of urban space among first-year students of the Pedagogical University.

2. Problem Statement

For the first time the term cognitive map was introduced by Tolman (1948), who believed that in the process of learning, animals form a special mental structure, which can be called a cognitive map of the surrounding world. It indicates the routes of movement and the relationship of elements of the environment. In 1960, Lynch (1990) first used cognitive maps to study the perception of the urban environment, believing that they represent an individual map of a place familiar to a person and can be described in terms of such aspects as recognizability, structure, emotional and practical significance of the depicted objects for the respondent. In the study of Milgram (1992), the psychological map was considered as an image of a city that lives in the mind of a person. In later works, methods of statistical processing of spatial information began to be used (Kitchin, 1996). The influence of the quality of teaching and teaching aids on the characteristics of cognitive maps in adolescents and young people has been revealed (Lapon et al., 2020). Interesting studies of the perception of the city using cognitive maps have also been done in Russian psychology (Timofeeva, 2013; Veselkova, 2010). However, these studies do not address the problem of correlation between the subjective perception of the city space and the adjustment of respondents to social life in the city. The main goal of this study was to investigate spatial environment perception of the city among first-year students who came to study from other places. Psychological studies revealed that many first-year students have difficulties in adjusting to a new environment and lifestyle (Belikova & Pyatunina, 2009; Grigorievskaya, 2013; Hamamura & Mearns, 2019; Nauta et al., 2020; Vinogradova, 2008; Vlasova, 2009). It was assumed that there was a connection between student's adjustment to a new way of life and his/her perception of the spatial environment of the city.

3. Research Questions

The study was conducted in February 2020. It involved 198 first-year students of the South Ural State Humanitarian and Pedagogical University (Chelyabinsk, Russian Federation) who came to study from other places. 76.2 % of the surveyed were girls, this reflects the specifics of the gender composition of the student pool of the Pedagogical University.

The main objectives of the study were the following:

1. To reveal the peculiarities of cognitive maps of the city among first-year students of the Pedagogical University.

2. To determine the level of adjustment to university life among students.

3. To reveal the peculiarities of cognitive maps of the city among students with different levels of adaptation to university life.

4. Purpose of the Study

The aim of the study was to identify the correlation between the features of cognitive maps of the city among first-year students of the Pedagogical University and their adjustment to educational activities and social life at the university.

5. Research Methods

To study the adjustment of students to university life, the methodology called the Adaptation of Students at the University by Dubovitskaya and Krylova (2010) was used. This technique makes it possible to identify two indicators, i.e. the adjustment level of students to educational activities, the adjustment level to other students from the group, and the relationships between them.

To study the perception of urban space, there was used the method of studying cognitive maps according to Milgram (1992). Students were asked to make a map of the city of Chelyabinsk where they study, marking up all those urban objects that come to their minds. It was noted that the map should reflect their own perception of the city. Besides, it was necessary to number each object as soon as they depicted it. The images obtained during this study were called *cognitive maps* and were considered as visualized objects reflecting the peculiarities of the subjective perception of city's spatial environment.

6. Findings

In the course of the study, there were identified four types of cognitive maps based on the subjective organization of space:

1. Geographic type is the type when the subject depicts the map of the city as a whole, orients it to the cardinal points, marks the main streets and objects. These maps are small-scale and not very detailed.

2. Topographic type is the type when the subject depicts a separate part of the city where he or she lives and studies or which he or she visits. These maps are large-scale, very detailed, they often show the names of the streets, specific objects (shops, cafes, etc.), showing the paths from one object to another.

3. Fragmentary type is the type when the subject places objects on the map separately without connecting them with each other. They seem to "hang in the air".

The proportion of these types of cognitive maps in the sample is presented in Table 01.

Table 1. The proportion of cognitive map types

Cognitive map types	Proportion (%)
Geographic type	28.8
Topographic type	47.9
Fragmentary type	23.2

The data presented in Table 1 show that the majority of students depict, in the form of a large-scale plan, that part of the city, which they often visit, without orientation to the cardinal points (topographic type). There are significantly fewer people who imagine the city as an integral spatial unity oriented to the cardinal points (geographic type). For almost a quarter of students, the city is represented as a set of separate objects (fragmentary type).

All objects depicted by students were divided into the following types:

1. Place of their study (South Ural State Humanitarian Pedagogical University).

2. Place of their residence.

3. Educational institutions (other universities, schools, colleges).

4. Railway stations (railway station, bus station and bus stations).

5. Shopping malls, shops.

6. Public catering establishments (canteens, cafes, restaurants).

7. Institutions of culture and recreation (theaters, cinemas, exhibition halls, concert halls, dance clubs, etc.).

8. Sports facilities (stadiums, swimming pools, sports palaces, sports clubs, etc.).

9. Medical institutions (clinics, hospitals).

10. Walking areas of the city (parks, pedestrian streets, squares).

11. Geographic objects (lake, river, reservoir, forest).

The occurrence of these groups of objects was assessed by the proportion of cognitive maps where this type is present. This information is presented in Table 02.

Table 2. The proportion of cognitive maps that contain images of specified types of objects

№	Types of objects	Proportion of cognitive maps (%)
1	Place of their study	100
2	Place of their residence	100
3	Educational institutions	36.4
4	Railway stations	64.6
5	Shopping malls, shops	89.9
6	Public catering establishments	84.8
7	Institutions of culture and recreation	63.1
8	Sports facilities	21.2
9	Medical institutions	3.0
10	Walking areas of the city	83.3
11	Geographic objects	4.5

The data presented in Table 02 show that the most common objects in the cognitive maps of students, in addition to the place of their own residence and study, are shops, cafes and walking areas of

the city. Cultural institutions are significantly less represented. Only one fifth of the students have a view of the city including sports facilities. This may indicate that the student are limited in their leisure activities, i.e. few of them go in for sports and physical training, find the time and financial opportunities to visit cultural and recreational institutions.

With the help of the methodology Adjustment of Students at the University, the students were divided into groups according to the level of adjustment to new university conditions (Table 03).

Table 3. The proportion of respondents belonging to different adjustment levels

№	Adjustment level	Proportion of respondents (%)
1	High	31.8
2	Average	43.4
3	Low	24.7

In order to achieve this goal, i.e. to identify the relationship between the features of cognitive maps of the city among students and their adjustment to the educational activities and social life at the university, we will consider how the types of cognitive maps are distributed among groups of students with different adjustment levels.

Table 4. Proportion of different types of cognitive maps among groups of students with different adjustment levels to the university

Types of cognitive maps	The proportion of cognitive map types (%)		
	Group with high adjustment level	Group with average adjustment level	Group with low adjustment level
Geographic type	47.6	23.2	14.3
Topographic type	41.3	53.5	46.9
Fragmentary type	11.1	23.3	38.7

The data presented in Table 04 show that in the group with the high level of adaptation, there is the highest proportion of cognitive maps of the geographical type and the lowest proportion of maps of the fragmentary type. In the group with the low level of adaptability, on the contrary, there is the highest proportion of cognitive maps of the fragmented type and the lowest level of maps of the geographic type. The significance of these differences is confirmed by analyzing data using $\chi 2$ statistical criterion. The criterion value is 21.259, the differences are significant at $p < 0.01$. Thus, the nature of the subjective organization of spatial information is associated with the level of adaptation to new living conditions.

The number of objects reflected in cognitive maps is also associated with the level of adjustment (see Table 05).

Table 5. Average number of depicted objects in groups of respondents with different adjustment levels of adaptation to the university

№	Adjustment level	Proportion of respondents (%)
1	High	12.3
2	Average	7.9
3	Low	5.4

The data presented in Table 5 show that in the group of students with the high level of adjustment to the university, the average number of objects is maximum, and in the group with the low level it is minimum.

7. Conclusion

The conducted research makes it possible to draw a number of the following conclusions:

1. The cognitive maps created by students could be divided into types according to the subjective organization of space: geographically oriented, topographically oriented, fragmentary oriented. In the total sample of the first-year students of the Pedagogical University, those students predominate whose cognitive maps belong to the topographic type, representing a large-scale plan of the area of the city where they most often go. There are significantly fewer students who represent the city as a spatial whole, with an orientation towards parts of the world (geographic type), as well as those who portray the city as a set of practically unrelated objects (fragmentary type).

2. By the beginning of the second term, it is possible to identify students with different levels of adjustment to the university.

3. It was revealed that the level of adaptation to the university and the nature of the subjective organization of spatial information are interconnected. In the group with the high level of adaptation, there is the highest proportion of cognitive maps of the geographical type and the lowest proportion of maps of the fragmentary type. In the group with the low level of adaptability, on the contrary, there is the highest proportion of cognitive maps of the fragmentary type and the lowest proportion of maps of the geographic type. A higher level of adaptability is associated with a greater number of objects depicted in the cognitive maps.

4. The obtained data show that the nature of the subjective organization of spatial information and the level of adjustment to new living conditions among students are interrelated. However, the nature of these links is not yet clear. On the one hand, it is possible that the students with higher level of adjustment more actively participate in the public life of the city and visit a wider range of the city objects using the city maps. As a result, the image of the city in their minds becomes more holistic and geographically defined. However, the connection can also be inverse, i.e. a high level of structuring of spatial information can be associated with a higher level of intelligence and information culture of the individual, which makes it possible for him or her to better adapt to the new environment. It is possible that both explanations are fair in their own way and the correlation is of two-way nature. It is necessary to continue research on the problem of perception of urban space by students and their adjustment to the conditions of the university life.

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