Children's spatial representations: comparative research in France and Poland

Dr. Katarzyna Bogacz

Lumière University Lyon 2
Géography Research Institut (IRG-UMR 5600)
5, Avenue Pierre Mendès-France
69676 Bron cedex
France
E-mail: k.bogacz@univ-lyon2.fr, k.bogacz@hotmail.fr

Introduction

This comparative research - in France and Poland - was carried out with 192 pupils in Lyon and Cracow. The objective was to compare the children's spatial representations of Lyon and Cracow. The object of the research is primary schools. The work is part of a broader problem of the acquisition of geographical knowledge.

The research is related to two disciplines, geography and psychology. It is supported by the postulate of spatial representations within the framework of the paradigm of spatial production. The work is part of an approach to geography, in which the lived-in space is in the centre of preoccupations. The theoretical and epistemological reflections of geographers, which consider the values attributed by the individual to the space, lead to mobilizing the theoretical and methodological elements of psychology.

The subject of the research mobilizes the field of tourism since the practices that stem from it are ways and means of appropriation of space that individuals implement in the construction of representations of space. The purpose of the work is the tourism for children, more specifically the "discovery classes" in France and the "green schools" in Poland, the school trips constituting both a life experience and a time of collective education.

In order to examine the children's spatial representations, both discursive (questionnaires) and graphics data (mental maps) are mobilized.

1 Presentation of the research protocol

1.1 Research objectives

This research project studies the modalities of spatial learning. Through experience, the individual constructs an interior model of his or her environment. The research postulated that the connection to reality is inseparable from the filter of the representations. The work focuses on spatial mobility as a factor of change of spatial representations of children. That's why it was very important to find a form of mobility common to all children. It was decided to conduct the survey before and after the school trip.

The central question of this research project is to answer the following questions:

- What are the differences and similarities between pupils in their spatial representations of Lyon and Cracow?
- Does the school trip modify the children's spatial representations?

Another question asks about the materials: how to identify the children's spatial representation?

1.2 Field research

The research is based on a specific field: the school classes that went on 5-day school trips (called "discovery classes" in France and "green schools" in Poland) during the spring of 2008. I carried out the work in Lyon and Cracow at the same time.

The object of my research is primary schools. I chose classes that would allow me to constitute a data corpus that presents a high degree of homogeneity (same age, belonging to a common territory). In Lyon, I carried out the survey in five school classes (121 pupils) of the same level from three primary schools. In Cracow, I collected my data with the pupils of five classes at three different levels from three primary schools.

The sample of the children in my research was formed on the basis of the following measures: the age (from 9 to 12), and the length and the kind of the school trip. The length of the five days was chosen principally for the possibility of comparing the two research fields.

All children went on a five-day school trip in the period from 19 May to 20 June 2008. In order to be sure that the changes observed in the children are the results of their stay in the "discovery classes", I conducted my survey in the shortest possible time before and after the school trip.

The sample for each country is composed of three sub-samples corresponding to different districts. The aim of this approach was to compare the spatial representations of students enrolled in the various districts of Lyon and Cracow; only one district in the center of a city - this is the area "Ainay" in Lyon.

1.3 Research methodology

I collected two kinds of data: graphic (children drawings) and discursive (questionnaire for the children) – before and after the school trip. I started with the questionnaire in order to identify for example the age and the place of residence of the children, but also their experience of mobility (number of departures on holiday per year, destinations, previous experience in discovery classes). In the next step, I wanted to obtain their mental map, which is defined by Bailly (1985) as the product that is the individual representation of spatial environment. According to Bailly, the mental map permits the subject to fix the images of his or her environment and find the limits of spatial knowledge. As a result, this approach allows us to comprehend individual and collective representations of space while allowing each subject a great amount of freedom in their manner of expressing themselves. Subsequently, after the school trip, I asked the children to draw one more mental map and to draw their city on a white paper, without documents or oral supplementary indication. According to Gumuchian (1988), drawing constitutes the material able to translate the space representation of a child. It is a child friendly means of expression: drawing can be particularly significant and permit a formulation more spontaneous and direct than writing.

Because of the different conditions of collecting our research materials (ten classes in two different education systems), I made the most precise translation to be able to compare them. I personally conducted each survey and I asked the teacher who was present during the research not to give any information to the pupils. As I carried out my research in two cities using two different languages, I took care of giving the simplest and the shortest possible instructions.

1.4 Mental map's exploitation

Mental maps analysis opens several routes of reflection. I concentrated on the reading of the interpretation, which could account for (and compare) different ways of space representation. The question is to elaborate the model of analysis and interpretation of mental maps, and this one is, obviously, foreign to classic topographical representation.

In order to compare the children's spatial representations of Lyon and Cracow and to understand if the experience of school trips modifies children's spatial representations, I developed a detailed analysis. I relied mainly on the work of A. Moles, E. Rohmer (1978) and K. Tsoukala (2007).

According to A. Moles and E. Rohmer (1978) in their individual perception of space humans have built an interlocking of "shells" (as A. Moles and E. Rohmer call it) around themselves. The first shell is the "body itself"- the limit is the skin. Then, is the "immediate gesture". The third shell is the "apartment room". The next shell is "the apartment". The fifth shell is "neighborhood" that A. Moles and E. Rohmer (1978) consider as a "set of known and explored streets". The next shell is the "city". According to A. Moles and E.

Rohmer (1978) “the city only really exists by its center”. Further, is located the “region” shell. The last is the “wide world”.

I decided to use the work of Moles although I think that the analysis of shells by the matrix should be regarded with caution because of the contemporary global society. Indeed, the media and especially the Internet, but also the means of transport ever faster facilitate (and fuel?) the confusion between temporal distance and spatial distance. However, I opted for an analysis in terms of “shells” because my main questions concerns the “neighborhood” and “city” - and I think the influence of new media is here less pronounced than for the “wide world” shell.

Table 1 Matrix of “shells” in mental maps.

SHELLS OF SPATIAL REPRESENTATION OF THE CITY		
Category		Coding procedures
Generic idea		impossible to determine the scale of representation
House	generic	home for a child, but no details where it is
	situated	precisely where the house is (street name etc…)
Neighborhood	generic	idea of neighborhood without “concrete” representation
	situated	elements of the residential area
City	generic	idea of city without “concrete” representation
	situated	place (s) of the city of habitation
Out-of-city places	generic	place (s) outside the city without representation “concrete”
	situated	places outside the city of habitation

Source: Compiled by K. Bogacz from categories of shells of A. Moles, E. Rohmer (1978).

Most mental maps belong both to two, three or more categories. For example, those which represent the neighborhood specifically, but also give a vague idea of a city, have been classified as “situated neighborhood” and “generic city”.

To better understand the different types of mental maps, I present an example of each of them. As each mind map can belong to both different categories, only “pure types” were chosen.

Fig. 1 Mental map “generic idea”

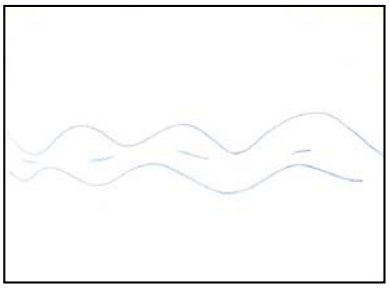

Fig. 2 Mental map “generic house”

Fig. 3 Mental map “situated house”

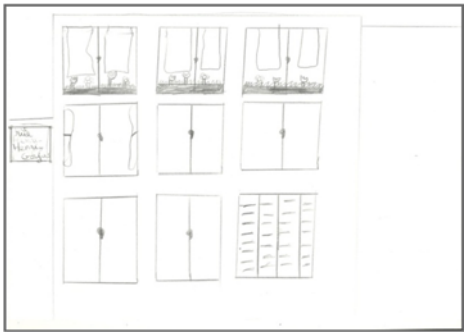

Fig. 4 Mental map “generic neighborhood”

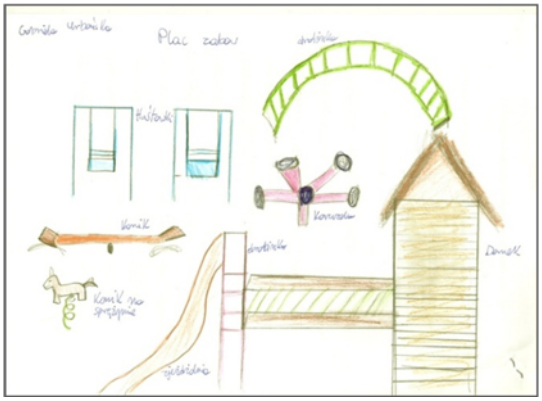

Fig. 5 Mental map “situated neighborhood”

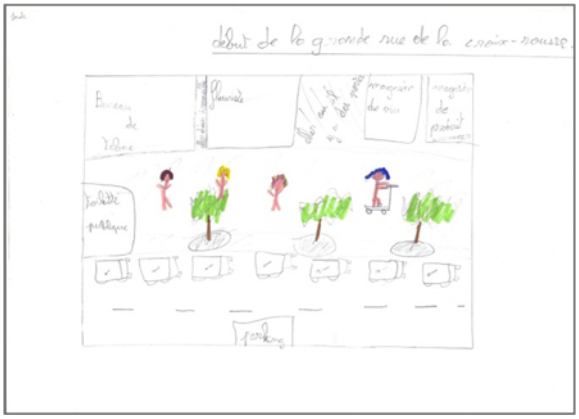

Fig. 6 Mental map “generic city”

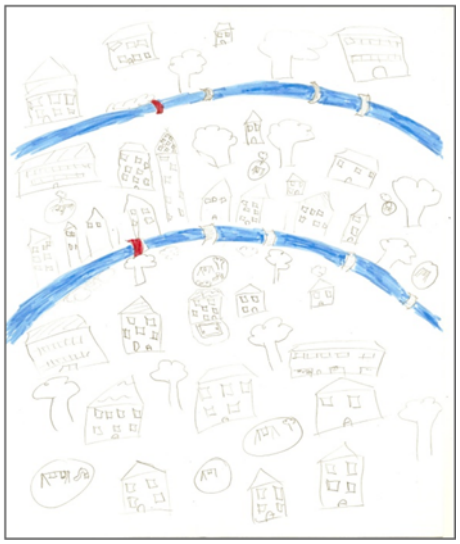

Fig. 7 Mental map “situated city”

Fig. 8 Mental map “generic out-of-city places”

Fig. 9 Mental map “situated out-of-city places”

2 Research results

2.1 Presentation of a sample

Both samples are composed of pupils from 5 classes of 3 different schools (and three different areas of schooling). Among schoolchildren Lyon and Cracow there are almost as many girls as boys. The main differences relate to the age and grade level of the children. The French sample is completely homogeneous on the level of students. The Polish sample is composed of children from 3 different grades. Only 22.5% of Polish pupils have the same school level as the French. In addition, almost half of the sample consists of Polish schoolchildren with a lower school grade than the French.

Table 2 Pupils from Lyon and their school district

SCHOOL DISTRICT	FREQUENCY	PERCENT
Croix-Rousse	48	39.7%
Montchat	49	40.5%
Ainay	24	19.8%
Total	121	100%

Table 3 Pupils from Cracow and their school district

SCHOOL DISTRICT	FREQUENCY	PERCENT
Podgorze	35	49.3
Debniki	16	22.5
Mistrzejowice	20	28.2
Total	71	100%

The French sample is more homogeneous at the age of children. As for the Polish sample, the younger students are in Podgórze and older in Mistrzejowice. Tables 4 and 5 show the intersection between age and schools.

Table 4 Pupils from Lyon and their ages according to their school district

AGE	SCHOOL DISTRICT						TOTAL	
	Croix-Rousse		Montchat		Ainay			
	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent
9	1	2.1%	1	2.0%	1	4.2%	3	2.5%
10	22	45.8%	23	46.9%	12	50.0%	57	47.1%
11	21	43.8%	23	46.9%	10	41.7%	54	44.6%
12	4	8.3%	2	4.1%	1	4.2%	7	5.8%
Total	48	100%	49	100%	24	100%	121	100%

Table 5 Pupils from Cracow and their ages according to their school district

AGE	SCHOOL DISTRICT						TOTAL	
	Podgorze		Debniki		Mistrzejowice			
	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent
9	18	58.1%	0	0.0%	0	0.0%	18	26.9%
10	12	38.7%	5	31.3%	0	0.0%	17	25.4%
11	1	3.2%	11	68.8%	17	85.0%	29	43.3%
12	0	0.0%	0	0.0%	3	15.0%	3	4.5%
Total	31	100%	16	100%	20	100%	67	100%

2.2. Quantitative treatment of data

Although after a comparative study of two samples, there are some differences, the four categories most represented are the same for Polish and French students': "situated city" and "situated neighborhood" followed by "generic city" and "generic neighborhood". However, the spatial representations of French children have more shells "situated neighborhood" unlike the Polish students who prefer "situated city". However, this comparative exercise raises a significant challenge, because in Poland the pupils of each school have a different grade level. It is therefore not possible to determine if the differences found are related to different areas of education or age of the children.

The comparative analysis of shells of spatial representations of Polish and French pupils reveals both a similarity between the two samples and a very high stability for both surveys (before and after school trip) even if the numbers change, the general trends remain almost the same. As for the statistical data presented below, the number of citations is always greater than the number of observations due to multiple responses (up to 8). The table below shows the shells of the spatial representation of a city of pupils from two samples.

Table 6 Categories of shells. French and Polish sample. Before and after school trip.

CATEGORIES OF SHELLS		FRENCH SAMPLE				POLISH SAMPLE			
		Before school trip		After school trip		Before school trip		After school trip	
		Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent
Generic idea		1	0,8 %	0	0,0 %	2	2,8 %	1	1,4 %
House	generic	6	5,0 %	3	2,5 %	4	5,6 %	1	1,4 %
	situated	3	2,5 %	4	3,3 %	0	0,0 %	1	1,4 %
Neighborhood	generic	14	11,6 %	11	9,1 %	9	12,7 %	9	12,7 %
	situated	57	47,1 %	61	50,4 %	28	39,4 %	25	35,2 %
City	generic	26	21,5 %	34	28,1 %	6	8,5 %	8	11,3 %
	situated	65	53,7 %	58	47,9 %	40	56,3 %	51	71,8 %
Out-of-city places	generic	0	0,0 %	1	0,8 %	2	2,8 %	1	1,4 %
	situated	2	1,7 %	0	0,0 %	2	2,8 %	0	0,0 %

The analysis shows that “situated city” is more often mentioned by Polish students. The inverse relationship exists for “situated neighborhood”. In addition, the results for the two shells are not the same before and after the school trip. On the one hand, the “situated city” becomes twice as large as the “situated neighborhood” within the spatial representations of Polish students. On the other hand, the French students begin to talk more often of the “situated neighborhood” shell than the “situated city”. The tables below show the frequency of “situated city” shells and “situated neighborhood” shells within spatial representations of Polish and French pupils.

Table 7 Results for “situated city” shells and “situated neighborhood” shells

CATEGORIES OF SHELLS	FRENCH SAMPLE				POLISH SAMPLE			
	Before school trip		After school trip		Before school trip		After school trip	
	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent
situated neighborhood	57	47,1 %	61	50,4 %	28	39,4 %	25	35,2 %
situated city	65	53,7 %	58	47,9 %	40	56,3 %	51	71,8 %

To explain these differences, I conducted more detailed analyzes at the neighborhood level of schooling. This approach allowed me to see that the “situated neighborhood” shell dominates greatly within spatial representations of students in Ainay, the only neighborhood located in city-centre. We see that it is Ainay which is “responsible” for such a discrepancy between the two samples regarding “situated neighborhood” (the frequency of the “situated neighborhood” is lower for pupils from Montchat and Croix-Rousse). Not only pupils from Ainay district are more likely to talk about “situated neighborhood”, but, in addition, the number of citations of this shell is exactly the same for both surveys!

At the same time, Ainay is an area where mental maps still contain the least “situated city” shells. Before school trip there are very little other categories than “situated neighborhood” in the mental maps of children in Ainay. This proportion changed a little bit after the school trip, with the appearance of the “generic neighborhood” shells and increased “situated city” and “generic city”. I consider that the detailed analysis of shells of students in Ainay confirms the existence of the phenomenon of city neighborhoods and their influence on spatial representations of children. The tables below show the frequency of the categories “situated city” and “situated neighborhood” within the shell of spatial representations of French students

Table 8 Shells by district of pupils. Results for the French sample. Before school trip

SHELLS	SCHOOL DISTRICT						TOTAL	
	Croix-Rousse		Montchat		Ainay			
	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent
Situated neighborhood	19	39.6%	18	36.7%	20	83.3%	57	47.1%
Situated city	28	58.3%	32	65.3%	5	20.8%	65	53.7%
Total	47		50		25		122	

Tableau 9 Shells by district of pupils. Results for the French sample. After school trip

SHELLS	SCHOOL DISTRICT						TOTAL	
	Croix-Rousse		Montchat		Ainay			
	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent
Situated neighborhood	22	45.8%	19	38.8%	20	83.3%	61	50.4%
Situated city	25	52.1%	25	51.0%	8	33.3%	58	47.9%
Total	47		44		28		119	

Also in Cracow in one of the neighborhoods, the children represent more than other “situated neighborhood” shells. These are students from Debniki (this area is located near the most famous castle in Poland - Wawel). While the prevalence of this category is not as high as for students in Ainay, the difference with the other parts of Cracow is however important. As this sub-sample has only 16 students, it is difficult

to draw conclusions from my observations. Especially for the mental map, the frequency of the “situated city” shell increases 3 times for schoolchildren Debniki between before and after school trip!

Moreover, from the mental maps, we find for schoolchildren from Podgórze the same phenomenon previously identified for children in Ainay. First, before the school trip a shell clearly dominates the other, then after the school trip its dominance still exists, but with an increase in the number of other shells. The tables below show the frequency of the categories “situated city” and “situated neighborhood” within the shell of spatial representations of Polish pupils.

Table 10 Shells by district of pupils. Results for the Polish sample. Before school trip

SHELLS	SCHOOL DISTRICT						TOTAL	
	Podgorze		Debniki		Mistrzejowice			
	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent
Situated neighborhood	8	22.9%	11	68.8%	9	45.0%	28	39.4%
Situated city	24	68.6%	1	25.0%	12	60.0%	40	56.3%
Total	32		15		21		68	

Table 11 Shells by district of pupils. Results for the Polish sample. After school trip

SHELLS	SCHOOL DISTRICT						TOTAL	
	Podgorze		Debniki		Mistrzejowice			
	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent
Situated neighborhood	12	34.3%	7	43.8%	6	30.0%	25	35.2%
Situated city	26	74.3%	12	75.0%	13	65.0%	51	71.8%
Total	38		19		19		76	

Conclusion

The comparative analysis of the two samples has made the understanding of spatial representations of children in Lyon and Cracow possible. We see that for pupils of both countries there are common elements for shells of spatial representations. Thus, for the representations of the city there is a superiority of “situated” neighborhood and the city shells. But there is also differences in the representation of the city, the pupils from Lyon (especially those from Ainay) prefer “situated neighborhood” shells unlike the Polish who prefer “situated city”.

The main conclusion shows the indication of the geographical situation of neighborhoods. This study permits to state that the pupils from downtown district in Lyon have mostly shells belonging to the category “situated neighborhood”. The analysis permits to evaluate the phenomenon of central area. It shows the role

played by the location of the neighborhood within the city and the division of space into “regular” and “exceptional” as a result. It is consistent with the interpretations of A. Moles and E. Rohmer (1978) that “urban life is polarized by the existence of a center which its inhabitants go towards” and who consider a separate wing of the “center” area of the city as “privileged”.

REFERENCES

Bailly, A. (1985). « La région : de la territorialité vécue aux mythes collectifs » in Lajugie J. (éd.) *Région et aménagement territoire*. Bordeaux : Université de Bordeaux I.

Gumuchian, H. (1988). *De l’espace au territoire, représentations spatiales et aménagement*. Grenoble : Université Joseph Fourier.

Moles, A. & Rohmer, E. (1978). *Psychologie de l’espace*. Paris : Casterman.

Tsoukala, K., (2007). *Les territoires urbains de l’enfant*. Paris : L’Harmattan.