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The Kind of Transportation Used Between Home and School in Children and Perception of Urban Space: Case of Kirklareli

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Abstract
The type of transportation used has an impact on the perception of urban space. For children, traveling by foot or cycling is an action beyond reaching a place. According to the "Spatial Planning Policy Framework" elementary school buildings should be planned in the service impact area which should be reached on foot by considering the distance of approximately 500 meters. However, today most of the children reach the school by vehicle because of the effect of urban sprawl. Most of cities do not have adequate regulations for walking and cycling. Traveling on foot and cycling has been adopted as an important research topic and country policy in developed countries, while in developing countries this issue cannot be attracted much attention. The aim of the study is to determine which type of transportation children use when going to school and its effect on the perception of urban space. To achieve this, surveys which include cognitive mapping, were conducted with 194 students who are in the 4th class. As a result, it was seen that most of the children wanted to make their school transportation by bicycle and on foot. The study has a unique value in terms of providing data to refer to policies based on children's home-school transport.
Keywords: Child; Urban; Urban Space; Perception; Transportation Type.

1. Introduction

While the topic of walking or biking as an active travel behavior is an important research topic and embraced as a national policy in developed countries, it does not receive enough attention in developing countries. The purpose of this study is to identify the effects of going to school by walking or using a vehicle on the perceptions of children on urban space. Within the scope of this study, Kirklareli example was used in examining the types of transportation that children use, types of transportation they prefer, components of the school route they'd like to change and the effects of active travel behavior on children. How the perception of urban space change by walking to school or using transportation is discussed within the context of the results of the survey including cognitive mapping conducted with 194 students in the 4th grade 10 years old group. This study has a unique value in terms of the children having a say in the decisions taken about them, and how they want their school transportation by learning from them and making necessary urban arrangements in this regard and providing reference data for the policies to be followed in children's school travels.

2. The Concept of Perception, Cognition and Cognitive Map

Perception is the process of becoming informed about the environment (Ünlü, 1998). Perceiving is the process of receiving information from outside, and it varies from one person to another according to their perception system, personality, social group, culture, and environment (Gezer, 2008). The concept of perception is mostly associated with cognition. Cognition refers to the spatial meaning of objects, their symbolization, and understanding their original features (Ünlü, 1998). Studies have shown that children's perception is different from that of adults (Ertürk, 1992).

2.1 Perceptional-cognitive Development of Children

Piaget analyzes children's perceptional-cognitive development in four main stages as sensorimotor stage, preoperational stage, concrete operational stage, formal operational stage (Ertürk, 1992).

- **Sensorimotor stage (0-2 age):** In this period the child cannot comprehend the perceptual continuity of the objects which sees around (Çanakçıoğlu, 2012). Distance and direction cannot properly determine by brain. It is quite difficult to understand spatial relations for the child (Gür and Zorlu, 2002).
- **Preoperational stage (2-7 age):** The child talks about objects that are not in his field of perception. Information that is gained on the perceptional level cannot be well preserved on the cognitive level. Euclidean relations such as ratio, distance, repetition, continuity, rhythm, and also the concept of perspective are neglected (Gür and Zorlu, 2002). At this stage; concepts of quantity, time, and size are primitive. Also the child cannot make cognitive comparisons yet (Yavuzer, 2015a).
- **Concrete operational stage (7-12 age):** This stage is a milestone in terms of the child's cognitive development (Çanakçıoğlu). Children start developing concepts such as quantity, time, size, volume, and distance. At this stage, the child can understand the principle of conservation and classify objects according to different features. However, abstract thought is not completely developed at this stage (Yavuzer, 2015a).

- **Formal operational stage (12+ age):** The child can make assumptions and come to logical conclusions at this stage. He can systematically solve complicated problems that are presented in both concrete and abstract ways (Yavuzer, 2015a).

2.2 Children's Space Perception

Piaget analyzed the concept of space according to the topics of topological, projective, and euclidean space relations. Piaget and Inhelder argued that topological space is mentally reconstructed, which is followed by metrical and projective concepts (Piaget and Inhelder, 1956).

- **Topological space relations:** Topological space includes proximity, separation, order, enclosure, and continuity relations. These topological relations are accepted as forming the basis for the concept of space. An expression of perspective, a reference system, a dimension, or the conservation of distance cannot be seen within topological space relations (Piaget and Inhelder, 1956).
- **Projective space relations:** There is no single reference system in this period. Projective space relations include the shape of the objects, their position in relation to each other, the distance between them, and perspective (Piaget and Inhelder,1956).
- **Euclidean space relations:** This period is based on one reference system. The development of this system is completed by making connections between different objects and putting all these objects in an order (Piaget and Inhelder,1956).

2.3 Cognitive Map

According to Lynch, cognitive maps are images that a person develops about a place. Environmental images are two-way processes between the observer and the environment. The environment reveals differences and relations. While people are constructing images, they choose, organize, and understand what they see through their aims and observations. Lynch analyzed city images under five topics of paths, edges, districts, nodes, and landmarks.

- Paths are areas such as roads, pavements, transportation areas, and railways that people use within the extent of their habits and opportunities.
- Edges are linear elements that are not used for transportation, and thus they are borders between two places. Shores, railways, and walls can be given as examples of edges.
- Districts are perceived as two-dimensional areas, and they constitute parts of the city.
- Nodes are intensive focal points that a person uses while going from one place to another like crossroads and squares.
- Landmarks form reference points and most of the time they are physical elements such as buildings, signs, or stores (Lynch, 1960).

Individual differences in the cognitive map are considered to be a significant factor. Factors such as personal experiences, type of transport used, gender, age, residence, and occupation create differences in cognitive maps (Ünlü, 1998).

3. The Relationship between School Transportation Kind and Physical Activity

According to the statement made by the World Health Organization, at least 60 minutes of physical activity every day is necessary for the physical, mental, and social development of children. However, the physical activity rate of children is decreasing day by day all over the world due to the rapid change of the social and physical environment. Very few children go to school on foot or by bike. It is believed that habits acquired in early childhood will provide a basis for adult behavior. For this reason, physical activity and healthy lifestyles are important in terms of acquiring them in early childhood and continuing throughout life (Kemperman and Timmermans, 2014; Veitch, Bagley, Ball and Salmon, 2006). Engaging in regular physical activity habits starting in early childhood is important in terms of raising healthy individuals, preventing chronic diseases (Janssen and LeBlanc, 2010), obesity (Kwon et al., 2013; Janssen and LeBlanc, 2010), and bad habits, socializing individuals and having an active senility (Conroy et al., 2005; Telama et al., 2005).

Active school travel including walking, cycling and other self-moving modes is an important source of physical activity for children (Arbour-Nicitopoulos et al., 2011; Larsen et al. 2016; Romeo, 2015; Morency and Demers 2010; Spinney and Millward, 2011). However, it is seen that the transportation between school and home has become increasingly chauffeur-driven (Buliung, Mitra and Faulkner 2009; Wendel and Dannenberg 2009). Even in short distances, families drop off their children to school by car (McDonald, 2007). It was observed that the physical environment was not found safe by the families which plays a role in the choice of school transportation (Arbour-Nicitopoulos et al. 2011; Pont et al. 2013). Built environmental features (Larsen, Gilliland, and Hess, 2012; Manaugh and El-Geneidy 2011; Panter et al. 2011), concerns about crime and traffic safety (McDonald, 2007; Pont et al., 2009), neighborhood safety, vehicle traffic conditions (Pont et al., 2009), distance between home and school (McDonald, 2008), pavement continuity, road type (Schlossberg et al., 2006), vehicle ownership, household income (Pont et al., 2009; Pucher and Renne, 2003) are among factors that affect children's choice of type of transportation to school.

It is recommended by the World Health Organization that states, societies and the private sector should cooperate to increase the use of active transportation type (World Health Organization, 2017). Within this context; governments, policymakers, schools and researchers are looking for ways to increase opportunities for children's physical activity (Arbour-Nicitopoulos et al. 2011). In the spatial plans construction regulation, it is said that elementary school functions

can be planned in the service effect area that should be reached by foot by taking a distance about 500 meters into consideration (Spatial Plans Construction Regulation, 2014). For this distance, it is stated that the effect area of elementary school is a distance of 15-20 minutes between the radiuses of 500-800 meters (Sancar, 2004). Providing these distances is very important for children to enjoy going to school on foot. It is emphasized that traveling by foot does not mean reaching from point A to point B for children. For children travel on foot is related to feelings such as curiosity, discovery, adventure, and happiness. As children walk, they roll the stones on the ground with their feet, put their feet in the puddle, touch the leaves and tree branches. It is stated that this way of travel is like a play full of discovery and joy for children (Romeo, 2015). It is emphasized that the children who go to school by foot in the mornings become more fit and open to learning, their classroom performance increases, and they are happier, healthier and more free individuals (Living Streets, 2020). Walking or biking to school offers important opportunities for children to explore their environment, develop responsibility and gain independence (Joshi, Maclean ve Carter 1999) and also, it reduces the harmful environmental impacts associated with motor vehicle use (Living Streets, 2020).

Active traveling to the school offers children an experience rich in sensory aspects. Rapoport (1987) argued that individuals traveling in motor vehicles perceive less details in their travel environments (Fusco et al., 2013). As experiential beings, children need opportunities to stimulate their senses. As children travel in their neighborhoods, they play with lighting poles, chase cats, chat with friends or other people, laugh, walk and run. Due to these activities, children gain direct experience in their neighborhoods without intermediaries and begin to learn about the world (Golledge et al., 1992; Noschis, 1992). Independent mobility gives children the opportunity to decide on a variety of topics, such as where to go, what to do and who to see (Noschis, 1992). Independence, action of finding directions, and speed have an impact on children's spatial cognition. While children travel independently between home and school without adults, they have more opportunities than children traveling with adults to explore their environment along their routes. Children that travel independently are motivated to actively recognize the roads to home or school. For this reason, they usually pay more attention to their surroundings and remember more spatial information than children accompanied by parents or school bus drivers. Children traveling at low speed have more time to observe the environment. School-home travel type affects the child's spatial cognition. The use of active or non-motorized transportation contributes to the development of cognition in terms of object richness and road accuracy. Ahmadi and Taniguchi (2007) concluded that children walking alone or traveling by bus can offer more accurate cognitive maps than those driven by car or who use school buses. In terms of spatial cognition developments, for the purpose of use active and non-motorized travel type necessary arrangements should be made to school transportation (Fang and Lin, 2017). For this reason, policies are needed to promote physical activity, eliminate barriers and encourage conditions for children and their parents to choose active means of transportation (Cooper et al., 2010; Napier et al., 2011).

4. Objective and Method

Kırklareli city chosen as a study area is located in northwestern of Turkey. It is surrounded by Bulgaria in the north, Black Sea in the east, Istanbul in the southeast, Tekirdag in the south and Edirne in the west (Special Provincial Administration, 2020). The reason for choosing Kırklareli as the study area is that, as a medium-sized city, according to 2019 population data, it is a settlement where it is possible to develop and implement policies for active travel behavior acquisition by having alternative transportation infrastructure systems that are open to development in terms of topographic and climatic characteristics, where traditional social neighborhood relations can still be maintained today. The aim of this study is to determine the effects of traveling to school actively (by foot-bike) or using a motor vehicle on the perception of urban space in children.

It is aimed to determine what kind of transportation using and how they want their transportation to school to be, to raise awareness about this issue, to help children gain active travel behavior from early childhood and to reflect the physical activity behavior to the social whole and to contribute data to the studies conducted in our country for the acquisition of a healthy society. It is aimed to give the opportunity for children who are the users of the city to have a say in the decisions made about school transportation by determining the regulations they want to make on how they get to school. It is also aimed to test the convenience of Kırklareli city for walking in terms of elementary school children.

In this context the following questions were intended to be answered;

- What urban elements does the child who goes to school by walking and using a vehicle when traveling between school and home perceive? Is there a difference between the perceived components?
- Does going to school on foot or by vehicle have an impact on urban perception levels?
- What type of transportation do children want to use when travelling to school?
- Are there any elements that children want to change / arrange in their school routes? If yes, what are they?

The following hypotheses were tested;

- Children walking to school show a more developed sense of urban space due to the fact that they interact more with the natural and artificial environment along the way. In other words; as the level of urban interaction increases, the level of development of urban space perception increases.

For the method of the study, a questionnaire and drawings have been used. Drawings were implemented as cognitive mapping data. Pictures are accepted as children's expressions of the environment around them and their perceptional skills. The child interprets the world according to how he perceives it, and he tries to depict it with drawings and expressions (Yavuzer, 2015b).

The implementation was carried out with the fourth grade children of two different elementary schools (Ziya Gökalp Elementary School and Hamdi Helvacıoğlu Elementary School) that have spatial similarities in the center of Kırklareli Province. Within the scope of the study, 4th grade (10-year age group) was selected. The reason why fourth grade students were chosen is that they are at the stage of developing perceptional-cognitive processes. According to Piaget, the child at this stage can think logically and understand the concepts of quantity, time, space, dimension, volume, and distance (Piaget and Inhelder, 1956). A survey consisting of two parts including cognitive mapping method was applied to the children. In the second part of the survey, the topic of "Can you draw what you see between home and school in order" was given to children, and they were asked to draw what they see on their way home from school. Through this method, the image elements perceived by children in the city depending on the type of transportation to school, how their urban perception levels change in connection with the type of transportation would be determined. The survey consisted of various questions addressing gender of the participants, the experiences and views of children about school transportation, how they handle their transportation to school, how they want to handle it, types of changes they want to make on the school route if they had the chance, duration of transportation between home and school, and how it feels to go to school on foot.

The children were asked to draw their pictures on the blank page at the back of the A4 size survey form. In the drawings, only black pencil is used. The implementation was carried out with a total of 210 children in two schools. 16 of the surveys were deemed invalid for various reasons, and the number of available surveys was limited to 194. Before the implementation was carried out, a pilot was conducted with 3 children in the fourth grade of elementary school to test the clarity of questions. Necessary arrangements were made, and the survey was finalized. Necessary permissions were obtained from the Kırklareli Provincial Directorate of National Education for the field study and the surveys were conducted in each classroom with fourth grade students in both schools.

5. Findings and Discussion

The data obtained were analyzed under two headings: evaluation of survey questions and analysis of cognitive maps.

5.1 Evaluation of Surveys

Table 1. Findings on gender distribution

Gender Distribution		
Category	*Number*	*Percentage (%)*
Female	106	55
Male	88	45
Total	194	100

A total of 194 students, with 106 girls and 88 boys from two elementary schools, participated in the study. 55% of the students participating in the study were girls and 45% were boys (Table 1).

Table 2. Findings about the kind of transportation

Transportation Type Used		
Category	*Number*	*Percentage (%)*
By foot	118	61
By Bicycling	7	4
By Personal/Private Vehicle	37	19
Bus/Minibus	3	1
School Bus	29	15
Total	194	100
Desired Transportation Type		
Category	*Number*	*Percentage (%)*
By foot	46	24

By Bicycling	99	51
By Personal/Private Vehicle	34	17
Bus/Minibus	4	2
School Bus	11	6
Total	194	100

It is seen that the children provide their school transportation 61% by foot, 19% by private vehicle, 15% by school bus, 4% by bicycle and 1% by bus with the ratio. It is seen that the desired transportation types by children with the highest rate are by bicycle (51%) and by foot (24%) (Table 2). The reasons for the desire of children to travel actively were explored with an open-ended question. The responses based on the percentage respectively are; *because it was fun, to exercise, I love cycling, because it is healthy, and I love walking.*

Table 3. Desired changes to be made on the way to school

Desired Changes to be Made on the Way to School		
Category	*Number*	*Percentage (%)*
Regulations for pedestrian traffic	74	38
Regulations for vehicle traffic	50	26
Regulations regarding bicycle	44	23
Regulations regarding the green area	42	22
Nothing	34	18
Regulations regarding pets	13	7
Regulations for environmental pollution	8	4
Unknown	1	1

The answers to the of open-ended question 'what changes would you make to the school route if you had the opportunity' were categorized as seen above (Table 3). 38% of the children stated in relation to the regulation of pedestrian traffic; *"I would make wide sidewalks, I would remove the vehicles parked on the sidewalks, I would make under-overpasses / pedestrian crossings, I would build roads closed to traffic, I would regulate pedestrian crossings, traffic signs and traffic lights".* In relation to regulating the vehicle traffic with a rate of 26%; they stated *"I would decrease the number of vehicles, if only there were no cars at all, I would fix the broken asphalt roads, I would build a car park, I would prohibit the passage of vehicles through the school road, I would like to have traffic police on the school road".*
Regarding bicycle use; 23% of the answers were, "*I would build a bike path / track and bike park"*.
Regarding the green area arrangement, 22% of the answers were *"I would like more trees, flowers, grass, etc."*
In relation to animals, with 7% they stated, *"I wish there were more cats, dogs, and more bird houses would be built".*
In relation to environmental pollution, 4% of the answers were *"I don't want construction noises, I would remove the sand on the school road, I would remove the construction equipment, the garbage thrown on the ground should be collected, the streets and pavements should be cleaner"* while 34 children responded by stating that they did not want to change anything, and 1 child did not know.

Table 4. Accompanying on the school route

Accompanying on the School Route						
Category	Go with parents		Go with friends		Alone	
	Number	*(%)*	*Number*	*(%)*	*Number*	*(%)*
By foot	67	57	4	3	47	40
By Bicycling	1	14	1	14	5	71
By Personal Vehicle	37	100	0	0	0	0
Bus/Minibus	2	67	1	33	0	0
School Bus	0	0	30	100	0	0

It was seen that only children who go to school by active travel can go to school independently and on their own. 40% of those who go on foot and 71% of those who go by bike can travel to school alone (Table 4).

Table 5. Transportation time to school within all transportation types

Transportation Time to School		
Category	*Number*	*Percentage (%)*
5 minutes or less	49	25
6-10 minutes	53	27
11-15 minutes	36	19
16-20 minutes	22	11
21 minutes and above	13	7
Unknown	21	11
Total	194	100

As seen in the table 5, most of the children can access the school in less than 20 minutes. It is seen that 11% of the students do not know how long it takes to arrive to school.

Table 6. Time spent on the road to school on foot

Time Spent on the Road to School on Foot		
Category	*Number*	*Percentage (%)*
5 minutes or less	29	25
6-10 minutes	31	26
11-15 minutes	27	23
16-20 minutes	11	9
21 minutes and above	9	8
Unknown	11	9
Total	118	100

As seen in the table 6, 25% of 118 students arrive to school on foot in less than 5 minutes, 26% between 6-10 minutes, 23% between 11-15 minutes, 9% between 16-20 minutes, 8% of the students arrive at school in 21 minutes and above. It can be seen from the table that 9% of the children do not know the time period for arriving at the school.

Table 7. Those who do not know the school transportation time

Those Who Do Not Know The School Transportation Time					
Category	*Go with parents*		*Unaccompanied/alone*		
	Number	*%*	*Number*	*%*	*Total Person Number*
By foot	9	8	3	3	118
By Bicycling	1	14	0	0	7
By Personal Vehicle	3	8	0	0	37
School Bus	0	0	5	17	29

As seen in the table above (Table 7), 13 out of 21 children who stated that they do not know the school transportation time go to school with the company of family members. It is seen that 3% of the children who go to school by foot and 17% of the children who go to school by school bus do not know the school transportation time.

Table 8. Feelings experienced in walking to school

Feelings Experienced in Walking to School			
Category		*Number*	*Percentage (%)*
Positive feelings	Happy	182	94
	Cheerful	87	45
	Others	17	9
Negative feelings	Tired	11	6
	Unhappy	6	3
	Anxious	2	1

94% of the children responded affirmatively as feeling happy to the question of how going to school on foot makes you feel. 45% of the children responded that they felt cheerful. Respectively the other as expressed in the table with a rate of 9%, they expressed that they would have positive feelings as excited, energetic, self-confident, adventurous and healthy (Table 8).

5.2 Evaluation of Cognitive Maps

Cognitive maps are handled within the scope of city image elements classified as paths, edges, districts, nodes, landmarks.

Table 9. Image elements in cognitive maps (The numerical values in the table are determined according to the presence of the image elements in the cognitive maps drawn.)

İmage Elements											
Category		*By foot*		*By Bicycling*		*By Personal/ private Vehicle*		*Bus/Minibus*		*School Bus*	
		Number	*%*	*Number*	*%*	*Number*	*%*	*Number*	*%*	*Number*	*%*
Districts	Park/green area	43	36	2	29	6	16	0	0	8	28
	Graveyard	0	0	0	0	0	0	1	33	0	0
Paths	Main road/street	90	76	4	57	29	78	2	67	24	83
	Road network	38	32	2	29	16	43	2	67	10	34
	Pavemant	16	14	0	0	3	8	0	0	1	3
Edges	Garden wall	30	25	1	14	9	24	1	33	5	17
	Railway	0	0	1	14	1	3	0	0	0	0
	Rising bollard	2	2	0	0	0	0	0	0	0	0
Nodes	Province Square	2	2	0	0	0	0	0	0	2	7
	Festival Area	1	1	0	0	0	0	0	0	0	0
	Intersection	4	3	0	0	7	19	1	33	3	10
Landmarks	Structure/store	118	100	6	86	7	100	3	100	29	100

Districts: 36% of the children who walk to school, 29% of children traveling by bicycle, 16% of those traveling by private vehicle, and 28% of those traveling by school bus drew park/green areas in their cognitive maps as a region. Only 33% of those traveling by bus drew a graveyard area as a region (Table 9).

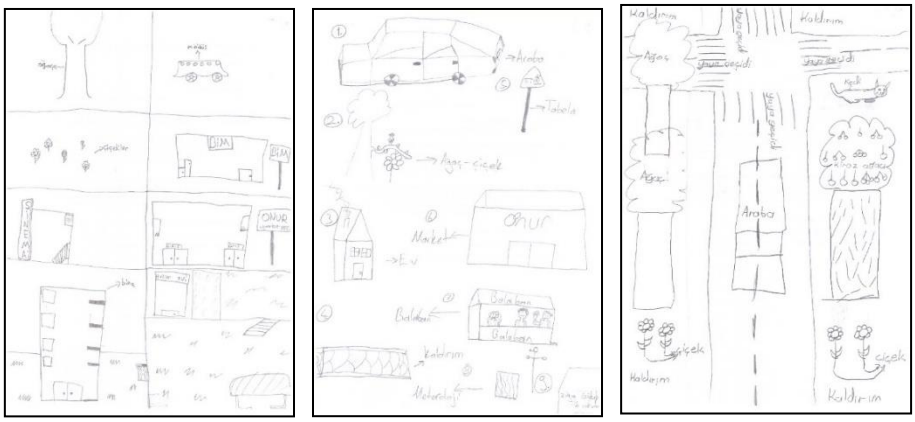

Figure 1. Examples of pictures drawn by children who go to the school by foot

Paths: Main road/street, road network and pavement are evaluated in this category. It is seen that the main road/street elements are seen the most by those who travel by school bus, personal vehicle, by foot (Figure 1), by bus, and by bike, respectively (Figure 2). On the other hand, it is seen that rate of road network drawing is higher in those who travel by motor vehicle (Figure 3). 14% of those who go to school on foot, 8% of those who travel by personal vehicle, and 3% of those who travel by school bus drew pavements in their cognitive maps (Table 9).

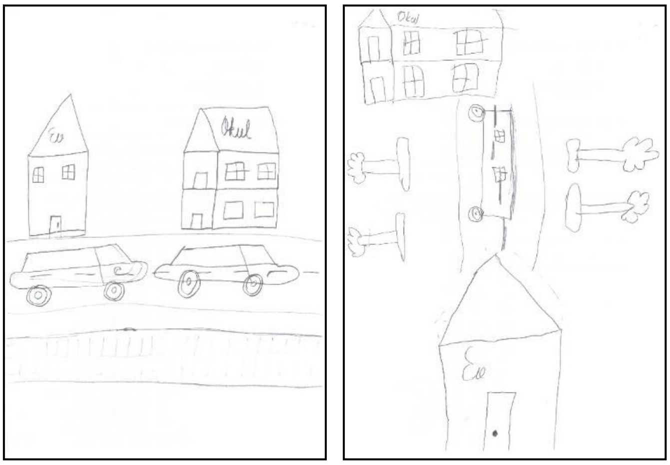

Figure 2. Example pictures for main road/street elements

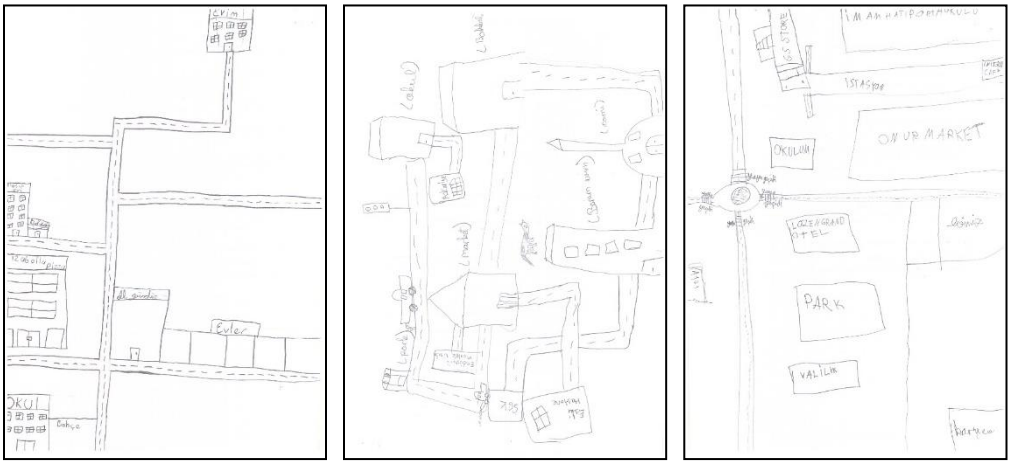

Figure 3. Example pictures for road network elements

Edges: Garden wall was drawn as an edge/border element in 25% of those traveling to school by foot, 14% of those traveling by bicycle, 24% of those traveling by private vehicle, 33% of those traveling by bus, and 7% of those traveling by school bus in their cognitive maps. The railway was drawn as an edge element in 14% of the cognitive maps of those arriving by bike and 3% of those who travel by a private vehicle. It is observed that the rising bollard, which is an urban equipment, is drawn by 2% in the cognitive maps of the children who only go to school on foot (Table 9).

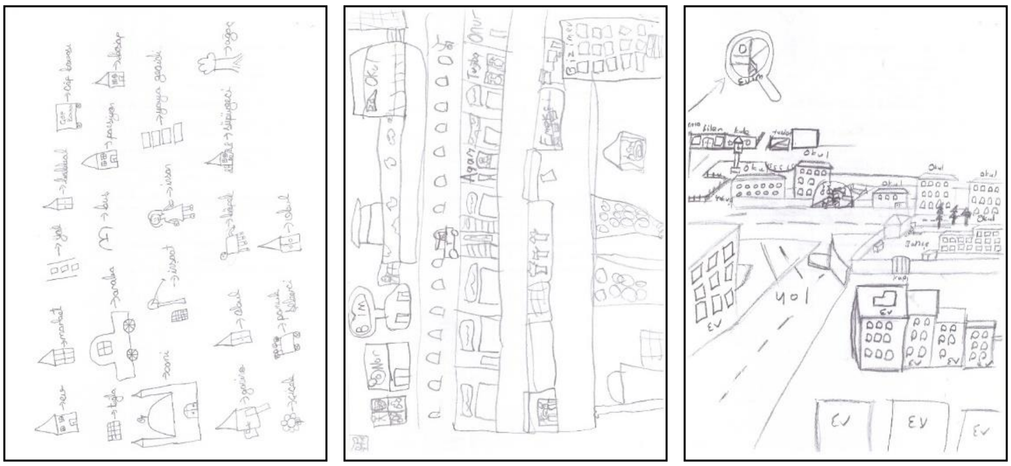

Figure 4. Examples of pictures drawn by children who go to the school by personal/private vehicle

Nodes: It is observed that 7% of those traveling by school bus and 2% of those traveling by foot drew the Province Square as the focal point. It is seen that the Festival Area is on the cognitive maps of those who only walk with a ratio of 1%. It

is seen that the intersection was drawn by bus / minibus users with a ratio of 33%, private vehicle users (Figure 4) with a ratio of 19% and school bus users with a ratio of 10%, respectively. While this rate is only 3% for those who goes to school by foot, it is not seen at all in those who goes to school by bicycle (Table 9).

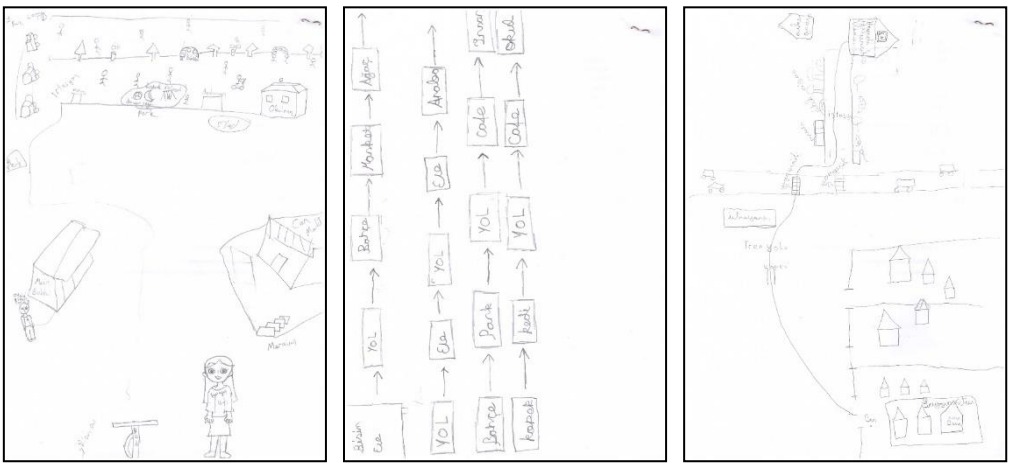

Figure 5. Examples of pictures drawn by children who go to the school by bicycle

Landmarks: It is seen that at least one landmark element was drawn on all of the cognitive maps (100%) of the children who go to school by walking, private vehicle, bus, and school bus. It is seen that this ratio is 86% in the cognitive maps of students who go to school by bicycle (Figure 5). It is determined that the mosque, hospital building, police station - retirement house (drawn in the same proportion), public education center - plane model - military mess (drawn in the same proportion) and cinema building are drawn as landmarks (Table 9).

Table 10. The level of development of cognitive maps

The Level of Development of Cognitive Maps										
Category	*By foot*		*By Bicycling*		*By Personal Vehicle*		*Bus/Minibus*		*School Bus*	
	Number	*Avg.*	*Number*	*Avg.*	*Number*	*Avg.*	*Number*	*Avg.*	*Number*	*Avg.*
Total of city image elements	1256	11	48	7	281	8	22	7	214	7

As a result of calculations based on the numerical majority of the image elements, an average of 11 items on the cognitive maps of 118 students who walk to school, an average of 7 items on the cognitive maps of 6 students who bike to school, an average of 8 items on the cognitive maps of 37 students go to school by private vehicle, an average of 7 items in the maps of 3 students taking bus / minibus, an average of 7 items in the cognitive maps of the 29 students who take the school bus were seen (Table 10). In addition to these findings, the variables that appeared prominently in the cognitive maps were also considered to be evaluated. In addition to the urban scale sign elements, it was observed that the sign element on the neighborhood scale such as fountain (4%), was drawn only by children who walk to school. It was determined that the cognitive maps of children who walk to school include urban equipment items such as recycling bin (3%), street lamps (3%) and benches (5%). Only in the cognitive maps of those who walk, it was seen that stone, leaf and dirt roads were drawn. 14% of the children who walk to school and 7% of children who take the school bus had a drawing of traffic light/traffic sign in their cognitive maps while these elements were not seen in the maps of those who bike to school or go to school by private vehicle. It was determined that 21% of those who walk, 17% of those who take the school bus, 14% of those who bike, and 14% of those who come by private vehicle drew pedestrian crossing.

6. Conclusions

As a result of the study, it was observed that more than half of the children in the schools where the study was carried out were actively traveling to school within a period of 15-20 minutes. This can be seen as an indicator of Kirklareli being suitable for walking for elementary school children. Children said that they wanted their transportation to school to be by bike or by foot. Regarding pedestrian and bicycle traffic to support active travel behavior on the school road, they stated that they wanted to make arrangements for bicycle use and on foot travel by saying that I would make a road closed to vehicle traffic, reduce the number of vehicles, prohibit the passage of vehicles in front of the school, make a bicycle path, organize pedestrian crossings and wide sidewalks. It is important that these requests have been determined

in order to identify what kind of arrangements should be made so that children can have a voice in determining their school transportation and develop a habit of physical activity. In addition, this study showed that the studies to be carried out in the city to develop active travel behavior from early childhood will be adopted. Walking to school is not an act of travel for children only from one place to another. It is understood by the feeling that going to school on foot will give children a very high level of happiness and joy. The high percentage of those who do not know how long it takes to get to school attracted notice. It can be said that the rate of accompanying parents in travel to school is high in those not knowing the school transportation time. Because this situation can be accepted as an indication that children are directed in their movements. Due to the fact that the time concept such as the time of leaving home is planned and carried out under the control and supervision from the parent, that individualization of child has not been completed yet and the concept of time has not yet occurred.

When all cognitive maps were evaluated, it was observed that there were deficiencies and differences in terms of image elements as well as similarities. When evaluated in the context of image elements, it was observed that none of the students evaluated the city within the scope of districts. Only partially; it was observed that the park, the green area and the graveyard were expressed as a separate area within the region. It was observed that the areas that differ functionally, such as the park and the green area, were drawn mostly by those who go to school by foot. It was observed that main road/street is remembered and expressed in cognitive maps more than 50% children of all. It was observed that the road network drawing was more pronounced in the cognitive maps of motor vehicle users. The road network seen more than 50% particularly in the cognitive maps of students who take the bus can be associated with the distance between home and school being long. In some of the cognitive maps of the students who go to the school by bus, it may be thought that the graveyard outside the city was drawn due to the distance between home and school. It can be said that the pavemant was drawn at a higher rate as it was used more by those who go school by foot. As an edge element; garden wall, railway and rising bollard are seen on the cognitive maps, while agricultural land, which is the most important natural element that limits the settlement, is not reflected on the maps. This may be due to the fact that the primary edges/borders consist of structures in students' transportation. Considering that the items drawn in the cognitive maps are the places that are experienced every day, it is seen that the agricultural lands do not constitute a border for the students and the primary border element is caused by urban construction for children. It was determined that the rising bollard, which is the element of urban equipment, is drawn only children who go to school by foot. As the nodes; it was determined that students who go school by foot draw both the Festival Area and the Province Square. The cognitive maps of the children traveling to school by bicycles do not have any nodes items. High drawing rates of intersections in motor vehicle users can be said to stem from being exposed to vehicle traffic for a longer time depending on the type of travel between home and school. Of the landmark elements; gas station, social security institution building, credit and dormitories agency building, water tower and city graveyard that are relatively far from the schools where the study was conducted were drawn in some of the drawings of children who only travel to school by a motor vehicle may indicate that they travel from an area that is outside the 500-meter walking distance as recommended in the spatial plans construction regulations and that these are reflected in the cognitive maps due to this distance. In the cognitive maps of children who travel to school by foot, the presence of sign elements/urban equipment elements at neighborhood scale and natural elements such as stones, leaves, and dirt roads were detected. The determination of these differences in image elements indicate that there are differences between the items perceived according to the kind of school transportation.

As a result of the analyses, in the cognitive maps of children traveling to school by foot, it was determined that there were higher numbers of image elements on average (Table 10). This indicates that those who walk perceive more urban elements than those who travel by vehicle. It can be said that going to school on foot or by vehicle has an effect on the level of urban perception, and that children walking to school have a more developed sense of urban space in terms of the numerical richness of the image elements. Considering the desire of children to travel actively, it is understood that it is important to make arrangements throughout the city for the acquisition of physical activity behavior from early childhood. The experiences and opportunities that children obtain from their physical environment from a young age lay the groundwork for the acquisition of habits that will continue at later ages. It was demonstrated that the transportation opportunities offered to children by the urban space have an impact on children's physical activity behaviors and their perceptions of urban space. It is important to make the necessary urban arrangements in order to actively provide school-based transportation in consideration of both supporting perceptual-cognitive development and so the behavior to be gained from early childhood will continue throughout life.

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