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Role of Educational Books and Materials in Gaining Geographical Concepts in Early Childhood Period

Sultan Baysan[1], Selcen Aydoğan[2]
[1]*Prof. Dr. Adnan Menderes University, Education Faculty Kepez, Efeler, Aydın*
[2]*Lecturer. Adnan Menderes University, Education Faculty Kepez, Efeler, Aydın*

ABSTRACT: *The aim of this study was to investigate the impact of educational books and materials of helping children learn geographical terms in the early childhood period. This study was conducted as a pretest-posttest control group, experimental model. The participants were a total number of 141 children (78 girls and 63 boys). In order to achieve the objectives, program goals of preschool, primary 1th and 2nd grades' education have been identified primarily. Then 51 items, concepts consisting of physical and human geography such as the Solar System and the Earth, Turkey and other countries, landforms, climate, population and settlement, energy sources were prepared in order to measure the achievements. 'Geographical Concepts Test' (GCT), was applied to a number of 293 children who passed the primary 1th and 2nd grades. The reliability coefficient of the test results (KR 20) was found to be 0.71 for preschool, 0.85 for 1st grade and 0.73 for 2nd grade. The finding indicated a valid and reliable instrument of the developed test to measure levels of children's geographical knowledge. After having ready the geographical conceptual tools an training program was prepared which attempted to utilise educational books and materials. Before carrying out the program, it was found that the experimental and control groups' pretest average scores did not differ (p>. 05). After carrying out the training program, it was found that all grades' experimental and control groups' posttest average scores about physical geography differed (p>. 05). The preschool and primary 2nd grade children's experimental and control groups' posttest average scores about human geography also differed (p<. 05). There was no significance for the 1st grade children (p>. 05). As a result, these differences showed that the training program worked by using educational books, toys, replicas of tools and equipment. Hence this research model is to be tested in other groups and environments.*

Keywords: *Geographical Concepts Test (GCT), early childhood, preschool, primary 1th and 2nd grades, education program, educational book, toys and other materials.*

I. INTRODUCTION

Geography is the science that describes the Earth and its people (Phillips, 1995), it explores natural features of the environment in which people live in, examines human-nature interactions and it examines the results posed by human economic activities in the framework of Geography i.e. distribution, causality and adherence principles (Şahin, 2003). According to Atalay (2000) geography studies shaping processes of the Earth, the effective factors, the relationships between the natural environment and human, vegetation, animal communities which are part of life and also their distribution on the planet.Moreover, geography is a community of sciences that investigates peoples'interactions with the natural environment by applying different research methods such as finding out the causes, comparing cases and establishing relations, then it reveals the results as a synthesis obtained from these various resources. Therefore, it consists of numerous disciplines (Özçağlar, 2000).

Geography enables people to understand and make sense of the world that they lived in. People's spatial perception is then directly related to the location of the area. The people of the 21st century need geography education to understand the interaction between political, economic, cultural systems and ecological development, to assign environmentally conscious steps and even to develop positive or negative feelings (Tanner, 2007) or attitudes towards the environmental issues.Environmental degradation occurs anywhere in the world today in various scales. This degradation causes environmental problems and affect the whole world by changing the layout of the functioning of the ecosystem. Geography also investigates environmental issues and these issues are our part of our life. This therefore is the reason to teach geography from the early years of childhood.

The literature has reported many times that the lack of geographic information is an important issue even in developed countries such as America (Hinde, 2014) or Canada (the Canadian Council for Geographic Education (CCGE), n.d.). Japan, United Kingdom, Australia and Germany are found to be more successful in teaching geographical skills (CCGE, n.d.). The lack of geographic information is also commonly observed in Turkey. Hinde (2014) for example, studied on teacher views related to geographic information. In this study, it was found that the geographic information is something the people's needs; however, when it comes to schools

inclusion of this information was missing. In other words, it was highlighted that geography is a significant subject; but in a way that has been largely ignored.

Geographical skills include map reading, knowing the reasons and results of important physical geography processes and interpreting the effects of these processes on human life. However, many children do not go any further than reciting on geographic information. Furthermore, with geographic skills we can find a place on a map; grasp the importance of environmental protection considering, for example thinning of the ozone layer and climate change; detect varying living conditions when giving at a latitude what climate can be seen in a particular part of a region or know sustainable forestry and waste management issues. Geography not only helps to identify our personal attitude about where we want to live; or affects our decisions of, for example what we do with waste batteries, where we situate a hospital or toxic waste-producing factories, but also on a global scale of how to deal with climate change, ozone depletion or sustainable development issues (Hinde, 2014). It also allows us to do location-time analysis by providing some technics in order to see the changes of incidents by time.

The concepts included in this study are chosen among the issues of human and economic geography that are related to the achievements of the Curriculum of National Education at preschool, 1st and 2ndgrade levels. These are the solar system and the Earth, the Earth's movements, Turkey and other countries, landforms, climate and vegetation, water, soil, natural disasters, population and settlement, energy resources.

Teaching Concepts in Geography

There are many studies on the most appropriate applications to the child development and even children's misconceptions. Arı, Üstün and Akman (1994), Akman (1995), Arı, Üstün, Akman and Etikan (2000) refer to the positive effects of preschool education on children's concept development in the early childhood period. For example, while Bredekamp and Copple (1997) concentrate on developing appropriate applications in early childhood curriculum, Karadeniz (2002) works on the conceptual evolution of the child, and Ülgen (2006) focuses on the concept development theory and its applications. Moreover, Arslan (2001) studies on the determination of children's misconceptions.

Children in the early childhood period being in the process of natural development start to wonder with a a strong curiosity to link themselves with the world surrounding them. They also start to observe the relationship between the Earth and the people, how the weather characteristics differ according to a region that they live in, how the environmental conditions change in their daily routine. Then, they begin to understand their world and its properties surrounding themselves and the people who lived in those places. That is how kids will take the steps in learning geographic information from their games and experiences in their early years, therefore schools will only have the role to develop their basic skills of geography (Fromboluti and Seefeldt, 1999).

Children take the sense of belonging to a place through their family. Then they will start to establish close links with natural and man-made environments. When children adapt or love somewhere, they begin to learn a lot and at the same time they want to protect the place (North American Association for Environmental Education, NAAEE, 2010). This is why it is important that children in their early years are to be introduced geographical processes occurring around them. Our experience is underpinned by our perception of place, the air we inhale; the water we drink, the food we eat, staying in the shade or under the sun where we live. Children with time understand that other organisms such as plants and animals have needs like people. At this point it reveals the desire to save this planet we live on.

When teaching geography to children appropriate physical environment, materials, teaching methods, plans and programs need to be used with consideration to the characteristics of their natural development.It is known that preschool children need to be reached in various and different levels; however, it is relatively new for the areas of bringing up children with the skills of environmental education or geographical knowledge. As Oltman (2002) indicates that the need for preschool children be taught in different ways compared to older children,thus this needs to be taken into consideration also for their acquisition of geographical skills.

It is known that children can use many of the details in their daily lives learned in geography lessons. Therefore, geographical knowledge for children is provided starting from preschool. Because the geographical knowledge given determines the activities of life and facilitates daily living (Girgin, 2001). There are numerous terms in the preschool education program related to orientation and position in space, concepts of time, sense and contrasting terms. Table 1 shows geographical concepts involved in the program. There are three themes related to geography in the primary 1st and 2ndgrades of the Life Study program. These noteworthy themes are *My School Excitement*, *My Unique Home* and *Yesterday, Today, Tomorrow* (Table 1). All these concepts, as shown in Table 1 are based on the fact that the geography is in our everyday life.

Table 1. Geographical terms in preschool, primary 1st and 2nd grades Life Study education program

Geographical concepts in pre-school education program
Location at the space / direction: front-back, up-down, back and forth, right-left, behind-in front, lower-upper-middle, under-on-in the middle, between-by-up-down, inside-outside, inside-out, on the left- on the right, far-near, low-high; Sensory: hot-cold-warm, hard-soft, slippery-rough, hairy-hairless, wet-dry, sharp-blunt, scented-odourless, glossy-matte, noisy-silent; Opposite: Live-lifeless, animated-still, dark-bright, deep-shallow; Time: before-now-then, morning-noon-evening, yesterday-today-tomorrow, day and night.
Geographical concepts in primary 1st and 2nd grades in *My School Excitement, My Unique Home* and *Yesterday, Today, Tomorrow themes of* the Life Study education program
Sun, Earth, celestial body, East, West, day, freezing, melting, space, sky, address, habitat, environment, natural environment, artificial environment, travel, living creature, home, state, country, natural disaster, seasons, weather, air, water, soil, calendar, occupation, conscious consumption, consumer, resources.

Source: National Education Ministry (MEB), Preschool Education Program (2013), primary 1stto 3rd grades the Life Study Teaching Program (2007).

Importance of the Study

Early childhood is the period that children acquire the basic concepts and it is the fastest time for their development. Learning and experience are everything for them. Learning and experience are the part of the early childhood period that all children try to understand the nature, their environment, and wonder the real world. Children's trial, exploration and practice for gaining environmental recognition play an important role in winning the geographical concepts in the early childhood period (Oltman, 2002; Morrison, 2007; the North American Association for Environmental Education (NAAEE), 2010). A planned geographical concept training program is required to be introduced children in the early childhood period because of children's fast development, interest and wonder about the understanding of the world and the environment. Therefore, this research is valuable for determining children's understanding of the world and the environment in the early childhood period about geographical concepts.

II. METHODOLOGY

Research aim

The overall purpose of this research is to examine whether educational books and materials affect children's learning of geographical concepts and their awareness. The research is however limited in Efeler district of Aydın province, Türkiye.

The following questions are the key issues of this study:

1. Is there a significant difference in average scores of Geographic Concepts Test (GCT) posttest results between the geographic concepts training program supported by educational books and materials applied experimental group and only the Ministry Education program applied control group of preschool, primary school 1st and 2nd grade children in favour of experimental group?
2. What are the views of preschool children and primary school 1st and 2nd grade children about geographic concepts?

Research Model

This study has a multidisciplinary approach. It was designed by the integration of methodology of geography with the pre-school and elementary school programs.It uses quantitative and qualitative research methods. Pretest and posttest control group design was chosen from the quantitative research methods. Two groups are set up randomly as experimental and control groups in this model. Before the experiment, a pretest applies to both groups. A posttest is also applied after the experimental procedure in order to see the effect of the dependent variable (Karasar, 2015). Geographical Concepts Test (GCT) (2014) prepared by the authors was used as a data collection tool. Difference between children's pretest and posttest mean scores were examined and analysis of covariance was performed for the validity and reliability study. Covariance analysis provides a variable to control the relationship statistically between the dependent and another variable with the impact factor being tested in a study (Büyüköztürk, 2014).

Interview technique is used as one of the qualitative research methods. Interviewing is a data collection tool to understand people what they think and why; what are the feelings and attitudes by entering into individuals' inner world and their perspective (Yıldırım and Şimşek, 2013). First, in-depth investigation was conducted through interviews of children's opinions. Then, the effect of educational books and materials (toys, models, play dough, etc.) that consisted of geographical concepts in order to find the awareness of children are attempted to be discovered.

Sample population

The sample group of this research consisted of a total of 141 preschool and primary school children who were studying in 1st and 2nd grade level in the province of the Aydın Efeler district in the 2013-2014 academic year. One of each grades mentioned above was determined the experiment and the other as the control group therefore a total number of the six groups were included in the research (Table 2).

Table 2. Sample distribution of children's grade level and gender

Grade level	Group	n	Gender
Preschool	Experiment	19	10 girls / 9 boys
Preschool	Control	20	13 girls / 7 boys
Primary 1st	Experiment	28	15 girls / 13 boys
Primary 1st	Control	27	14 girls / 13 boys
Primary 2nd	Experiment	23	12 girls / 11 boys
Primary 2nd	Control	24	14 girls / 10 boys
Total		141	78 girls / 63 boys

The independent groups t test was used in order to compare the average test scores of experimental and control groups. Before using this parametric test first, the Shapiro-Wilk normality test was applied due to the small sample size of the experimental and control groups. Since it was founded .957; .937; .968 and $p>0.05$ for the experimental groups; and 0.947; .942; .970 and $p>0.05$ for the control groups, the results were insignificant. These results indicated indifference from the normal distribution both for the experiment and the control groups. Thus, all groups came from the same universe.

Data Collection Tool

In this research, "Geographical Concepts Test" (GCT) was used in order to assess the level of children's geographical concept recognition. It was aimed to measure the level of success in gaining geographical concepts of preschool children, primary school 1st and 2nd grade children. The test included 12 multiple-choice and 39 short-answer questions. The test includes the concepts of *position* that was related to *direction and space*, *sense, the opposite* and *time* concepts that were in the education program of preschool and primary 1st and 2nd grade levels. The test also includes the acquisitions in the themes of *We Should Protect Our School, Resources Can Run Out, Look at Those in Nature, My Country is Different, Yesterday, Today, Tomorrow, Countries and their Children, Adventure of Water, The Earth Rounds, How Will the Weather be?, Seasons, the Sky, Natural Disasters and Measures to be Taken*, *Human and Environment, Clean Environment* and *Healthy Life*. Moreover, the *Solar System and Earth*, *Movements of the Earth*, *Turkey and other countries*, *landforms, climate and vegetation*, *water*, *soil*, *natural disasters*, *population and settlement* and *energy sources* were among the other subjects of the test. The concepts above, which were included in the test covered all the themes in the related education program. KR 20 value (Kuder-Richardson) was calculated to measure the internal reliability of the test. If the calculated reliability coefficient is 0.70 and higher, then the reliability of test scores is considered generally sufficient (Kayış, 2008). The test results showed that the internal consistency coefficient was calculated as 0.71 for preschool, 0.85 for the 1st grade and 0.73 for the 2nd grade children. In line with the findings, the applied test was found to have a reliability level that can be used in this study.

"Geographical Concepts Test" consists of 51 items. The test was administered by researchers with individual interviews. Because of the lengthy coverage of the test, it was applied in three sessions with consideration to the children's short attention span. In the first session questions related to the Solar System, the Earth and landforms were applied. In the second, climate and vegetation, water, soil, natural disasters and in the last session questions related to population, settlement and livelihood were instructed. Each session lasted between 14-23 minutes. Test scores were obtained if the children gave the correct answer it was rated 1, if the answer was false then rated 0 points.

The test consisted of two parts. Figure 1 shows the geographical subjects included in the test. The first was the Physical Geography sub-test. 36 was the highest score that can be obtained from this test. In this part of the test there are questions to measure issues related to the mapping knowledge (recognizing the map of the country where they live, naming other countries, finding places on Earth, know the city's name where they live, naming oceans, seas and lakes on the map), Universe, the Solar System and Earth (naming the planets in the Solar System, telling the difference between night and day, naming seasons), landforms (pairing landform names with their given pictures such as mountain, plains and plateaus, pairing the factors that cause changes in landforms with their pictures), climate and vegetation (weather, pairing seasons with their pictures, matching the images of grass, shrubs and forest forms vegetation), hydrography (matching the pictures of oceans, seas, lakes, rivers, giving examples of aquatic environments), soil (erosion and defining *TEMA* i.e. a non-profit organisation about erosion control) natural disasters (earthquakes, floods, landslides, storms, volcanoes).

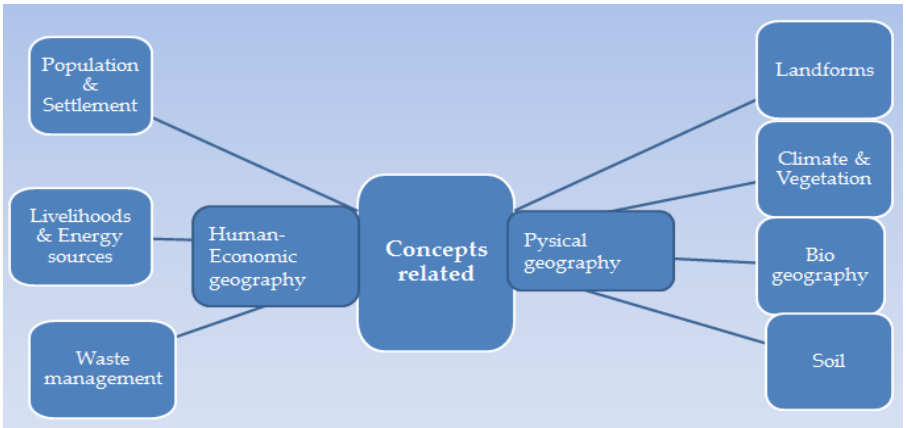

Figure 1. Subjects of Geographical Concept Test (GCT)

The second part of the test involved issues about Human Geography. The highest score that can be obtained from this test was 15. In the population and settlement section of Human Geography there were some questions about how to distinguish a village and a city from each other and matching their pictures. In the economic geography section people professions, livelihoods, solar, wind, geothermal energy types were asked as well as questions concerning the assessment of waste and garbage.

Preparation and Implementation of Geographic Concepts Training Program

Primarily, preschool and primary school of 1st and 3rd grades Life Science education programs were analysed before designing and implementation of the geographical concepts training program (MEB, Ministry of Education, 2013 and 2007). Then, the acquisitions, topics and themes have been identified related to the geographical concepts. The training program was implemented in 2015 for a total of 8 weeks during the first term (a total of 24 hours, including 3 hours per week). The program was conducted by the researchers together with teacher collaboration.

Educational toys, various tools and books published by TUBITAK that were suitable for children's developmental level were used in order to provide practical geographical information to embody children about daily life. The program contained a wealth of materials such as concepts toys, tools and supplies of solar system model, water and life in nature boards, seasons fabric wall panels, giant globe, fabric velcro swelling world map, weather fabric figures, small-sized cloth map of the world, the world of children finger puppets, sea-water creatures concept bag, weather concept board, the Solar System and seasons puzzles, compass, globe, individual physical and political wall maps of Turkey and the continents, dough material, Turkey and continents' gypsum molds. Each concept tool was tried to be used effectively to reach the acquisations identified by the program. Maps were constantly hanged in the classroom. A learning centre in each classroom was set up for the children to review, experiment and play with toys and materials.In addition, mountains, plains and plateau forms were made by using play dough with the help of plastic moulding material. Three-dimensional gypsum maps were also obtained by using plastic map molds in group activities.

The translated names of used concept books issued by TUBITAK were *Time, the Sky at Night, Stars and Planets, Living in Space, the Solar System, Our Planet Earth, At the Moon, Our Environment and Us, Our Environment and Us: Sea, Our World, Seasonal Cycle, A Windy Day, A Rainy Day, Weather, Ecosystems, Rain Forests, The Seashore, Animal Nests, Elephants, Dinosaurs, Animals Living in the Forest, Underground, In the Lake, the World's Children, All Colours of a Rainbow, Disasters and Catastrophes, When Disasters Hit, Forest Fires, Floods, Volcanoes, Earthquakes and Tsunamis, What We Should Do to Manage Natural Disasters?, What We Should Do to Stop the Soil Being Unproductive? What Should We Should Do to Save Endangered Species?, What We Should Do to Protect the Forests?, Waste? It is not a Worry, Don't Dispose, Use, Waste and Recycling, Why I am to Recycle?, Why Should I Care about the World?, Bonfim Ribbons in Brazil, Protective Jaguar in Mexico, Horus' Eyes in Egypt, the Sacred Flower in China, Be an Earthquake Scientist, Is Wind Energy Reliable?, Oil to Where?, Solar Energy, Natural Gas, Hydropower Energy*. Primary 1st and 2nd grade children read these books every day during one lesson hour. In addition, they talked to each other about the books they read. Preschool teachers read these concept books in the Turkish Language Activity Time. Some books were sent home to be examined together with the children's families. A book exchange program was also set once a week.

Following pictures represent some scenes during the implementation of the training program. The last three pictures present the intense concentration of the children in reading activities (Figures 1-6).



Figure 1. Working on the Solar System Model **Figure 2.** Seasons study **Figure 3.** What to Live in Water?



Figures 4, 5, 6. Activities of reading TUBITAK Popular Science Books (pictures were taken with permission)

III. FINDINGS

Quantitative findings of the study are presented below.

Table 3. The mean, standard deviation and t-test results of the experimental and control groups' post-test scores about the physical geography part of the geographical concept test

Groups	**n**	$\bar{x}$	**ss**	**t**	**p***
Preschool experiment	19	16.73	5.99	4.26	.000*
Preschool control	20	10.00	3.65		
Primary 1st experiment	28	30.25	4.23	6.26	.000*
Primary 1st control	27	21.07	6.50		
Primary 2nd experiment	23	33.39	3.42	4.701	.000*
Primary 2nd control	24	26.37	6.32		

*p< .05

Table 3 shows a significant difference between the control and experimental groups preschool, primary school 1st and 2nd grades (p <. 05). The arithmetic mean posttest score of preschool -experimental test group is 16.73, the score of the control group is 10.00; the experimental group of primary school 1st grade is 30.25, the control group is 21.07; primary 2nd grade experimental group is 33.36 and the control group is 26.37. These findings therefore demonstrate that the arithmetic mean scores of the experimental groups are being higher than the control group scores on the Physical Geography part of the GCT.

Table 4. The mean, standard deviation and t-test results of the experimental and control groups' posttest scores about the human geography part of the geographical concept test

Groups	**n**	$\bar{x}$	**ss**	**t**	**p***
Preschool experiment	19	6.89	3.57	3.307	.002*
Preschool control	20	4.05	1.39		
Primary 1st experiment	28	8.03	3.13	.976	.334
Primary 1st control	27	7.28	2.59		
Primary 2nd experiment	23	12.69	2.65	3.018	.004*
Primary 2nd control	24	9.75	3.89		

*p< .05

Table 4 shows a significant difference between the preschool and primary school 2nd grade experimental groups and their control groups. However, no difference was found between the primary school 1st grade experimental and control groups (p<.05). The arithmetic mean posttest score of preschool-experimental test

group is 6.89, the score of the control group is 4.05; the experimental group of primary school 1st grade is 8.03 the control group is 7.28; primary school 2nd grade experimental group is 12.69 and the control group is 9.75. These findings therefore represent that the arithmetic mean scores of the preschool and primary school 2nd grade experimental groups are being higher than the control groups' scores on the Human Geography part of the test. However, it was determined that the scores of the primary school 1st grade control and experimental groups are close.

Qualitative findings of the study are represented below.

Table 5. Qualitative findings of the experimental and control groups about cartography

Questions		**Preschool**		**Primary 1st grade**		**Primary 2nd grade**	
	Group	**Pretest**	**Posttest**	**Pretest**	**Posttest**	**Pretest**	**Posttest**
Which countries' names do you know?	Experiment	1. France: 2 2. China:1 3. Japan:1	1. Germany:3 2. USA:2 3. France:2 4. Egypt:1 5. Russia:1 6. Japan: 1 7.Holland:1 8. Italy:1 9. China: 1	1. Germany:3 2. Italy:3 3. Japan: 2 4.Bulgaria:2 5. France:1 6. USA: 1 7. Syria:1 8. Croatia:1 9. Spain:1	1.Holland:8 2. China: 5 3. USA: 5 4. India:4 5. Spain:4 6.Italy:3 7. Germany:3 8. Madagascar: 3 9. UK: 2 10. Kazakhstan: 2 11.Nigeria: 1 12. Iran: 1 13. Iraq:1 14. Ireland:1 15. Indonesia: 1 16. Belgium: 1 17. Syria:1 18. France:1	1. USA:10 2. China:7 3. Holland: 4 4. Japan: 4 5. Spain:4 6. Germany: 3 7. S. Arabia: 1 8.Canada:1 9. Kazakhstan: 2 10. Australia:2 11. Greece: 2 12. Italy:2 13.Bulgaria:2 14. Syria:2 15.Norway:1 16.Iran:1, 17.Croatia:1 18.UK:1 19.Cyprus:1	1.Russia:10 2. Germany:10 3. China: 8 4. France:5 5. Brazil: 5 6. Italy:5 7. Australia:5 8. S. Arabia: 4 9. USA:3 10. Holland:3 11. Greece:3 12. Spain:3 13. UK:3 14. Iran:3 15.Ukraine:2 16.Kazakhstan:2 17. Japan:2 18. Syria:2 19. Azerbaijan:1 20. Afghanistan:1 21. Bulgaria:1 22. Mexico:1
	Total	**4**	**13**	**15**	**46**	**53**	**82**
	Control	1. USA: 1 2. China: 1 3. Germany:1	1. China: 1 2. USA: 1 3. Germany:1 4. France:1	1. Germany:2 2. Africa: 2 3. ABD: 1 4. China: 2 5. Italy:2 6. Bulgaria:2 7. Holland:1 8. Japan: 1 9. Romania:1	1. Africa: 9 2. China: 7 3. Greece:6 4. France: 2 5. Germany: 2 6. Japan: 2 7. India: 1 8. Spain: 1 9. Brazil: 1	1. China:6 2. Greece: 4 3.Russia:4 4.Bulgaria:4 5. Brazil:4 6. Russia: 4 7. Spain:3 8. Iraq: 3 9. Germany: 3 10.Iran:1 11.Italy: 2 12.UK:2 13.Canada:2 14.Japan:2 15.Syria:1 16.Sweden:1 17.Norway:1 18. Australia:1 19. Kazakhstan:1 20. Mexico:1	1.Germany:13 2.China:7 3. Australia:5 4. Russia:5 5. Italy:5 6. UK:5 7. Brazil: 4 8. Kazakhstan:4 9. France:3 10. Japan:3 11. Syria:3 12. Greece:3 13. Iran:3 14. Portugal:3 15. Spain:2 16. S Arabia: 2 17. Colombia: 1 18. Canada:1 19.Iraq:1 20. Afghanistan:1
	Total	**3**	**4**	**14**	**31**	**50**	**80**
Can you locate the countries you know on the globe?	Experiment	0	0	1. USA:4 2. Brazil: 3 3. India:2 4. Australia:1 5. Egypt: 1 6. China:1	1. USA: 5 2. Spain: 3 3. Australia: 3 4. Holland:2 5. Brazil:2 6. Mexico:1 7. Kazakhstan:1 8. UK:1 9. India:1 10. China:1 11.Greece:1 12. Iran:1	1. Brazil:4 2. Spain:2 3. Australia:2 4. Italy:1 5. USA: 1 6. Kazakhstan:1 7. Colombia:1 8. Russia :1 9. Chad:1 10. China: 1	1. Canada:4 2. Iran: 3 3. Brazil:2 4. Russia: 2 5. USA:2 6. Japan: 2 7. Mexico:2 8. UK:2 9. Mongolia:1 10.Australia:1 11. Canada: 1 12. Iraq:1 13. China:1 14. Germany:1
	Total	**0**	**0**	**12**	**22**	**16**	**25**

	Control	0	0	1. USA: 4 2. Iraq: 1 3. Canada:1	1. USA:3 2. China:2 3. Australia:2 4. Syria:1	1. USA: 9 2. Canada:2 3. Brazil:2 4. Iraq:1 5. Australia: 1	1. Brazil: 8 2. USA:6 3. China:5 4. Iran: 3 5. Australia:2 6. Bulgaria:1
	Total	**0**	**0**	**6**	**8**	**15**	**24**
Can you show us the lakes, seas, and oceans with their names on the globe?	Experiment	0	0	0	Mediterranean: 14 Black Sea:14 Aegean Sea: 9 Van Lake:3 Atlas Ocean:4 Pacific Ocean:2	0	Mediterranean: 15 Black Sea: 12 Aegean Sea: 10 Marmara Sea: 8 Pacific Ocean:6 Indian Ocean: 5 Atlas Ocean: 7
	Total	**0**	**0**	**0**	**46**	**0**	**63**
	Control	0	0	0	Black Sea:4 Mediterranean: 3 Aegean Sea: 1	0	Mediterranean: 7 Black Sea:7 Aegean Sea:3 Atlas Ocean:1 Van Lake:1 Marmara Sea: 1
	Total	**0**	**0**	**0**	**8**	**0**	**20**

P.S: The responses of *America* was reworded to *the USA* due to respondents' reference to the country not to the whole continent.

Table 5 shows the answers about naming the countries as well as the lakes, seas and oceans and their location on the globe, Turkey and the world map. It was found that higher the grade levels of children there is a tendency to increase the number and diversity of countries that they know. Preschool and primary school 1st grade experimental groups were more successful after the application of the training program than the control groups in naming countries. When the children were asked to show the location of the countries that they knew on the globe after the training preschool children were unable to demonstrate this skill. However, primary school 1st grade experimental group children were found to be more successful after the training program compared to their control group. No children could give the right answers in naming the lakes, seas and oceans on a map in the pre-test period. However, primary school 1st and 2nd grade experimental groups gave abundantly right answers after the training, therefore, the training program confirmed itself to be useful. It is also noteworthy that all groups, including preschool children use the word 'America' which is in fact a name of a continent instead of using 'the United States'. This may be because of the overall misuse of the word America term meaning the United States in this country.

There are many examples examined from different perspectives in the literature about the Universe, the Solar System and the Earth issues. One of these is Şahin (2001). The author evaluated the knowledge of second graders about the space; Kikas (2005) addressed the description of children about the sky, the Earth and the Sun; Bostan (2008) studied the thoughts of children in different age groups about the basic concepts of astronomy.

Table 6. Qualitative findings of the experimental and control groups about the Universe, Solar System and Earth

Questions		**Preschool**		**Primary 1st grade**		**Primary 2nd grade**	
	Group	**Pretest**	**Posttest**	**Pretest**	**Posttest**	**Pretest**	**Posttest**
Which of the planets do you know?	Experiment	Mercury: 2 Mars: 2 Venus: 2 Saturn: 2 Jupiter: 1 Sun: 1	Saturn: 13 Mars: 2 Jüpiter2 Neptune: 2 Venus: 2 Mercury: 1	Mars: 11 Mercury: 6 Jupiter: 5 Uranus: 2 Neptune: 1 Sun: 1	Mars: 10 Uranus: 7 Neptune: 7 Venus: 6 Sun: 6 Jupiter: 5 Saturn: 5 Mercury: 4 Pluto: 2	Mars: 9 Venus: 4 Mercury: 3 Saturn: 3 Jüpiter2 Uranus: 1 Neptune: 1 Sun: 1	Mars: 18 Saturn: 7 Pluto: 5 Neptune: 5 Venus: 5 Jupiter: 5 Uranus: 4 Mercury: 1
	Total	**10**	**23**	**26**	**52**	**24**	**50**
	Control	Jupiter: 2 Mars: 1 Mercury: 1 Saturn: 1 Sun: 1	Sun: 7 Mercury: 1 Venus: 1 Mars: 1	Mars: 10 Jupiter: 4 Saturn: 3 Pluto: 3 Venus 3 Uranus: 1 Sun: 1	Sun: 12 Mars: 7 Venus: 3 Mercury: 3 Uranus: 2 Pluto: 2 Neptune: 1 Jupiter: 1	Mars: 15 Jupiter: 8 Neptune: 3 Mercury: 1 Uranus: 1 Sun: 1	Mars: 10 Jupiter: 10 Neptune: 5 Mercury: 2 Venus: 2 Pluto: 2 Uranus: 1
	Total	**6**	**10**	**25**	**31**	**29**	**32**

Can you tell about the differences between the Night and the Day?	Experiment	* The stars and the Moon are visible at night, the Sun is in the daytime: 11 * Night is dark, day is light: 4 * Night is cold, day is hot: 2 *At night we sleep, we wake up the day:1	* The stars and the Moon are visible at night, the Sun is in the daytime: 17 * Night is dark, day is light: 11 * Night is cold, day is hot: 6 *At night we sleep, we wake up the day:3	* The stars and the Moon are visible at night, the Sun is in the daytime: 3 Night is dark, day is light: 4 * Night is cold, day is hot: 3 *At night we sleep, we wake up the day: 0	* The stars and the Moon are visible at night, the Sun is in the daytime: 10 * Night is dark, day is light: 15 * Night is cold, day is hot: 1 *At night we sleep, we wake up the day:0	* The stars and the Moon are visible at night, the Sun is in the daytime: 5 * Night is dark, day is light: 7 * Night is cold, day is hot: 1 *At night we sleep, we wake up the day:1	* The stars and the Moon are visible at night, the Sun is in the daytime:10 * Night is dark, day is light: 8 * Night is cold, day is hot: 1 *At night we sleep, we wake up the day:6
	Total	**18**	**37**	**10**	**26**	**14**	**25**
	Control	* The stars and the Moon are visible at night, the Sun is in the daytime: 12 * Night is dark, day is light: 3 * Night is cold, day is hot: 1 *At night we sleep, we wake up the day:1	* The stars and the Moon are visible at night, the Sun is in the daytime: 12 * Night is dark, day is light: 5 * Night is cold, day is hot: 0 *At night we sleep, we wake up the day:1	* The stars and the Moon are visible at night, the Sun is in the daytime: 3 * Night is dark, day is light: 5 * Night is cold, day is hot: 2 *At night we sleep, we wake up the day:1	* The stars and the Moon are visible at night, the Sun is in the daytime: 9 * Night is dark, day is light: 11 * Night is cold, day is hot: 2 *At night we sleep, we wake up the day:2	* The stars and the Moon are visible at night, the Sun is in the daytime: 7 * Night is dark, day is light: 10 * Night is cold, day is hot: 1 *At night we sleep, we wake up the day:0	* The stars and the Moon are visible at night, the Sun is in the daytime: 8 * Night is dark, day is light:10 * Night is cold, day is hot: 3 *At night we sleep, we wake up the day:1
	Total	**17**	**18**	**11**	**24**	**18**	**22**

Table 6 shows the answers to the questions of *"What planets do you know, except for the Earth?"* and *"Can you tell us about differences between the night and day?"*. The posttest correct answers of all levels (preschool and primary school 1st and 2nd grades, (23-52-50 respectively) the experimental group seems to reach higher rates after the training program when compared to their pretest answers (9-25-24 respectively). When the children were asked what the difference was between day and night, the answers cumulated around usually 'the stars and the moon is out, it is dark and cold, they sleep at night', as 'the sun is in the sky during the day, people are awake, it is bright and hot'. An interesting finding in this section is that the preschool level experimental group had higher frequencies in telling the difference between the day and night (f: 37) after the training program compare to the primary school 1st and 2nd grade level experimental group (f: 26).

Table 7. Qualitative findings of the experimental and control groups about biogeography

Question		**Preschool**		**Primary 1st grade**		**Primary 2nd grade**	
	Group	**Pretest**	**Posttest**	**Pretest**	**Posttest**	**Pretest**	**Posttest**
Can you give some examples of living organisms in the sea?	Experiment	Fish: 28 Turtle: 2 Frog: 2 Cancer: 2 Octopus: 2 Seahorse: 2 Starfish: 1	Fish: 30 Turtle: 6 Frog: 3 Cancer: 3 Octopus: 3 Jellyfish: 1 Seahorse 1 Starfish: 1 Sea urchin: 1 Seal: 1 Algae: 2	Fish: 17 Cancer: 6 Octopus: 5 Frog: 4 Seahorse 2 Starfish: 1 Turtle: 1 Jellyfish: 1 Crocodile: 1 Scorpio: 1 Hippo: 1	Fish: 37 Cancer: 3 Octopus: 3 Frog: 2 Jellyfish: 2 Turtle: 2 Seahorse 1 Starfish: 1 Coral: 1 Algae: 1 Hippo: 1 Crocodile: 1	Fish: 46 Octopus: 2 Seahorse: 2 Starfish: 1 Turtle: 1 *Yakamoz**: 1	Fish: 45 Cancer: 10 Starfish: 8 Jellyfish: 3 Octopus: 3 Seahorse 1 Turtle: 1 Coral: 1 Sea urchin: 1 Frog: 1 Starfish: 1 Crocodile: 1
	Total	**39**	**52**	**40**	**55**	**53**	**76**
	Control	Fish: 23 Octopus: 2 Seahorse: 1 Starfish: 1 Cancer: 1	Fish: 21 Octopus: 6 Frog: 4 Turtle: 2 Sea Horse: 2	Fish: 21 Octopus: 4 Frogs: 2 Jellyfish: 1 Yengeç1	Fish: 35 Cancer: 3 Octopus: 2 Seahorse: 1 Frog: 1	Fish: 31 Frog: 7 Octopus: 6 Cancer: 3 Seahorse: 1	Fish: 40 Turtle: 6 Frog: 4 Turtle: 2 Octopus: 1

			Sea serpent: 1	Algae: 1	Crocodile: 1 Lobster: 1 Oyster: 1 Jellyfish: 1		Cancer: 1 Seahorse: 1 Mussel: 1
	Total	**28**	**36**	**30**	**46**	**48**	**56**

**Yakamoz* means phosphorescence in the sea. Meanwhile is interestingly assumed as a living organism in the sea.

The answers to the question of *"Can you give some examples of living organisms in the sea?"* were given in Table 7. First of all common answers of all groups cumulated around fish species. Secondly the children reported turtle and crab organisms. Answer diversity of the experimental group increased after the training program. Their answers about the number of aquatic examples in the posttest (52-55-76) and the diversity of aquatic species (10-12-12) increased. However, there were some answers of animals that live in freshwater instead of the sea environments such as hippopotamus, crocodile and frogs. Therefore, this peculiarity of children's misconception should be examined more carefully when they are attempted to be taught.

Findings regarding population and settlement, people's livelihoods and energy sources in the human and economic geography section of the study are included in the discussion part of this article.

Table 8. Qualitative findings of the experimental and control groups about waste management

Question		**Preschool**		**Primary 1st grade**		**Primary 2nd grade**	
	Group	**Pretest**	**Posttest**	**Pretest**	**Posttest**	**Pretest**	**Posttest**
Can you give some examples of waste and garbage?	Experiment	Paper:1 Glass:1	Paper:5 Glass:3 Plastic:2 Metal:1	Glass:1 Plastic:1	Paper:8 Glass:4 Plastic:4 Metal:3 Batteries:2	Glass:3 Metal:3 Plastic:3 Paper: 1 Batteries:1	Paper:10 Glass:5 Plastic:5 Metal:4 Batteries:2
	Total	**2**	**11**	**2**	**21**	**11**	**26**
	Control	Paper:1 Plastic:1	Paper:1 Glass:1	Paper:4 Glass:2 Plastic:1	Paper:4 Glass:2 Metal:2 Plastic:1	Glass:6 Paper:5 Plastic:3 Metal:2	Paper:7 Glass:6 Plastic:5 Metal:2
	Total	**2**	**2**	**7**	**11**	**16**	**20**

Table 8 includes qualitative findings regarding waste management. Preschool, primary 1st and 2nd grade experimental groups were more successful in separating waste from garbage. Moreover, their numbering about the types of waste was more diverse than the control groups after the training programme (Table 8).

IV. DISCUSSION

As mentioned previously geographical concept test consisted of physical geography and human geography parts. The findings of Physical Geography part were significantly different between the preschool, primary school 1st and 2nd grade level experimental and control group children after the training program ($p<.05$). In the Human Geography part there was a significant difference between the experimental and control groups of preschool and primary 2nd grade children while there was no significant difference between the control and experimental groups of 1st grade children considering posttest mean scores.

The Physical Geography part as specified in the methodology composed of 6 parts. These parts included cartography, the Universe, the Solar System and Earth, landforms, climate, vegetation, hydrography, land, natural disasters. Children were asked to show the provinces on a Turkey's map where they lived, to distinguish the location of Turkey, to show any country that they knew and to name other countries on the globe because, geography is of the information about the world and space. The Earth in geography is not only a two-dimensional surface, but also an area or space having a third dimension of time. Children from preschool have their own logic about geographical issues,thus geography gives insight to their perception and interpretation about the world around them and their place in the world as well as time issues in their lives.

The space concept in preschool education is questioned albeit at a basic level. Experiences and practices about interpreting direction together with spatial perception are imparted by modifying the spatial perception with advancing age in primary school (Ünlü, 2014). In pre and primary schools determining directions is brought in according to the Sun and taught as four main directions (i.e. North, South, East and West). Direction and spatial perception skills are developed with the help of maps and sketches (Öztürk, 2010). In this study the children were successful in distinguishing the location of Turkey before the training program. However, they failed to demonstrate Aydin province on the map of Turkey to say the name of other countries and to find their places on the globe.They even gave examples of the city names in Turkey instead of the names of other countries

in the world. Therefore, this drew attention to misconceptions about spatial perceptions. However, it was noted that the experimental group children were quite successful after their training programme. That means the program worked after having played with the globe, jigsaw world map, jigsaw map of Turkey, Turkey wall map, Turkey and the world countries' map. In addition, they named the countries and found the location of the province of Aydin on a Turkey map after having played with toys like fabric mold maps and read educational books about country lifestyles, people in the other countries.

While preschool children in the experimental group were successful in naming the other countries, their features, people and the way of living, they failed when the location of the countries on the globe was asked. In this case, illiteracy has a major role, i.e. because the children are illiterate in this age group, they were unable to read the names of the countries on a map therefore were unable to show their location on a map.In the early childhood, children have their ability to read logos, brands and/or figures well without knowing the letters. In consideration with this advantage illustrated maps enriched by logos, 3D images or figures may be used for the development of cartography skills in preschool children.

Primary 1st and 2nd grade experimental groups compared to the preschool children having a higher level of perception of space development and being also more successful in demonstrating the different countries on the globe are related to their reading and writing skills of this age. Looking at the examples in the literature, for example Demiralp (2006) reports that experimental group students with the help of demonstration method are more successful in using maps and globes than their control group. Öcal (2007) in a qualitative study reported that secondary school students were able to say Turkey's neighbouring countries, but unable to indicate the position of these countries on a map. In our study, no matter what the level of children at primary school level it was found that they were successful in naming the other countries, showing their location on the globe when they were supported by educational tools and materials due to their reading skills.

The children in all groups were asked to name the planets, to tell the difference between night and day and to match the pictures with their seasons in the Universe, Solar System and Earth section of the test. In this study, before the training program, children knew the Sun and the Moon as planets. A few children only named Mercury, Venus, Mars, Jupiter and Saturn. They reported, knowing these planets from the cartoons. The experimental group children after the training program, no longer called the Sun and the Moon as planets. They distinguished the Sun as a star and the Moon as the moon of the Earth. Moreover, after showing the children the models of the Solar System, reviewing educational books on our world and the planets, the number of planets known and frequency of children knowing planet names increased. In addition, the children learned all the planets after the training programme.

Before the training programme only half of the experimental and control groups talked about some of the differences in telling the difference between day and night (preschool experiment/control: 18/17; 1stgrade primary experiment/control: 10/11; 2nd grade experiment/control: 14/18). Almost all children after the training program (preschool experiment/control 37/18; 1stgrade primary experiment/control: 26/24; 2nd grade experiment/control: 25/22) talked about changes in the sky, the light-dark concepts, temperature alterations and differences in human behaviour. Here the striking result was the experimental group children from preschool were to express more differences between the day and night compare to the primary school experimental group children of 1st and 2ndgrades. This situation is due to the application of the concepts based training program in the preschool education. The use of observation technique helped to ensure children embody what they have learned when teaching concepts such as night and day, light and dark, morning-afternoon-evening, hot and cold.Less frequent answers compared to the preschool group from the experimental group of primary school 1st and 2nd grade children can be caused by the fact that the conceptual issues are taught by theme-based learning at this level compare to the more true answers from the experimental group of preschool children who learned the concepts by conceptual teaching method in preschool level. Since all groups are in the same concrete operations period, rapid transition from conceptual teaching to theme-based learning may be inaccurate.

In the landforms section of the Physical Geography part the children were asked to give examples of landforms, to match pictures of mountain, plain and plateau and to match images with geographical events which cause changes on the ground. Prior to the training program, not any of the children could give examples of any landforms. However, all the children were successful pairing of the images of mountains, plains and plateaus particularly the mountain. In fact the children could recognize a mountain, but could not think the mountain was a landform. After the training program the experimental group children were quite successful, because they played with dough, made mountain, plain and plateau kind of landforms therefore, understood that these figures were considered as landforms then could give more examples of them.

The importance of teaching natural seasons was stated in the literature in preschool and primary school programs (Koç, 1999; Kadıoğlu 2001; Sever, 2005). However, it was seen that despite the need mentioned above, this content does not appear in preschool as well as the primary education programmes. The children at all levels were successful in knowing the general characteristics of the seasons and pairing the seasons with their images. However, the children were surprised about the given image of a rainy winter for Aydın and asked why

the picture did not include a snowy view which they had been accustomed to. Indeed, in a study it was revealed that primary and secondary school students learned mathematical seasons differently and had perceptional problems in local seasonal characteristics when they compared the seasons they had learned in school. Therefore, it is recommended that students should be directed to understand the changes in natural seasons in a locality (Kadıoğlu, 2001).

In our study, the experimental group children reported that the differences were not the same in the different regions of the world between the seasons after the training programme. They reported that the differences were not the same in the different regions of the world between the seasons. For example, it was reported that there were four seasons in this country; but four seasons may not be in other countries. They also stated the reason for that IC: *"the Sun could not reach everywhere as the same degree of heat"*. Therefore, it may be inferred for the geographical processes that the children can establish a cause-effect relationship. Some of the children's answers show effective reasoning skills such as presenting comparisons in their sentences which means the implementation of the training program was successful. For example, ZA said: *"Aydın is very warm. It is not snowing. It is always raining in winter. We went to Konya. It snows there*" (2^{nd} grade of primary school).

In the section related to the climate and vegetation the respondents were asked about the weather, Aydin's climate and vegetation formation. Children at all levels before the training program gave correct answers after observing the weather outside to the question of *"could you give some information about today's weather?"*. Particularly the experimental group of primary school 1^{st} and 2^{nd} grade children were successful about describing and distinguishing different climate characteristics and their vegetation type after the training program in which they had read children's educational books about climate and vegetation around the world. These children were able to distinguish in matching the name "forest" with its picture, but not able to match "grass" and "bush" terms in plant communities prior to their training. The experimental group children after the training program, were also able to distinguish the last terms with their images.

Hydrography (Water Geography) is one of the branches of Physical Geography. It examines the surface and underground waters, i.e. rivers, lakes, seas and oceans, the formation of groundwater and distribution pattern, natural factors that determine the distribution and uses of these sources (Jong, Lachapelle, Skone and Elema, 2010). In this section of the test there were 4 questions. First, the children were asked about the differences between the ocean, seas, lakes, rivers. Second, they were requested to indicate the locations of the oceans, seas and lakes on Turkey's and the world maps. Third, they were prompted to identify the pictures of the ocean, sea, lake and river terms and lastly, gave examples of creatures living in the water. In the pretest the answers of the children were cumulated around "water" to the question of *"when talking about the oceans, seas, lakes and rivers, what comes to your mind?"*; but not any information was received regarding the size of these water bodies. Not any of the children at any level could show the location of the oceans, seas and lakes on a map. However, most of the experimental group primary school 1^{st} and 2^{nd} grade children (f: 46/63) could successfully determine the locations of the seas and lakes of Turkey after the constant existence of the world and Turkey's maps hanged in the class, investigation of the atlas and educational materials, making Turkey's 3D map by using plaster material as a group activity and examining the seas around and the lakes on this material.

In a similar study Erdönmez (2008) investigated the effect of active learning methods in teaching hydrography issues to 10^{th} grade students. In our study, when used active learning methods and techniques were found to be effective for the experimental group children learning about hydrography issues in a geography course. The preschool children in our study were able to define small ponds as lakes, large water bodies as the sea or oceans; however, they were neither able to say their names, nor to show their locations on the 3D map. The reason for this may be the lack of reading and writing skills of preschool children to read the names of the seas and oceans. However, the children were observed to recognise the lake Van as having an obvious geographical shape. This may be related to the fact that this age children are able to recognise shapes before their reading skills developed. Therefore, this result suggests us preschool children can even gain map reading skills. This can be accomplished by using their shape 'reading' abilities.

When the children asked to give examples of aquatic life in waters they mostly gave the examples of fish, crabs, frogs, turtles, starfish before the training program. After the training program they also added the examples of jellyfish, octopus, crocodile, hippopotamus, seals, sea urchins and corals They added phosphorescence incident as a sea creature which was a misconception. They also mentioned some water plants such as algae. In other words, the awareness level of children was also arisen concerning the diversity of living creatures in the water bodies. In addition, an increase in the frequency of samples given was observed after reading and/or examining of children's books about aquatic life (preschool experiment/control: 52/36; 1^{st} grade experiment/control: 55/46; 2^{nd} grade experiment/control: 76/56).

The children in the soil section were requested to give examples of how the soil be used, soil erosion, landslides and the mission regarding *TEMA* (the Turkish Foundation for Combatting Soil Erosion, for Reforestation and the Protection of Natural Habitats) as a volunteer organization.The children reported that they could play games with soil, it is necessary for the survival of plants such as trees and other plants, it could also

be used as *AO: "a construction material"*. The last expression is another misconception, because the soil is not one of the construction material, at least in the modern architecture. In this case the child strongly refers to the sand instead of the soil. In fact, the sand is not considered as the real soil. In the pretests the children were observed that they had difficulty in knowing TEMA's mission, distinguishing the difference between the soil erosion and landslide; for example, reported *EC:"it was hard to tell the difference between soil erosion and a landslide"*, however, they could mention about "*the need for planting trees in order to prevent soil loss"*.

In addition, the children were asked about describing natural disasters. The questions below were separately asked to the children "*what are earthquakes, floods, landslides, storms, tornadoes, volcanoes?*", "*how do they occur?*" and "*what are the results of these natural disasters?*". Before asking these questions, first, the children read and examined the educational books such as *Earthquakes and Volcanoes,What We Do When We Have Natural Disasters,When Disasters Hit, Earthquakes and Tsunamis, Become an Earthquake Become a Volcano Scientist, Floods, Forest Fires*. Then, the children were asked to describe these terms, for example *KG:"shaking"* for earthquakes; *YE:"when it rains too much water entering the home"* for floods; *AKB:"when the soil slides homes are buried under the ground"* for landslides; *BD:"severe wind"*and *EDB:"blowing up of homes and cars as a result"* for storms; *TO:"a volcano is very hot inside"*and *TC:"the volcanoes can burn homes"* for a volcanic eruption. In addition, the children added that these natural disasters would damage people's homes and their belongings, but some of the disasters could be prevented. It was also reported that the children experienced an earthquake, but they did not see any other disasters.

There were questions about distinguishing the city from the village and matching them with their pictures and noticing the differences between these types of settlements in the population and settlement section of economic geography in the Human Geography part of the test. Before the training program the children at all levels of the experimental groups could match a village with 'less habited' and a city with 'crowd' terms. However, they were unable to identify a village and a city from their people's lifestyles. The experimental group children after the training program could also identify the settlement plan differences between city and village dwellings. For example, it was reported that *CS: "dwellings could include multi storey buildings in cities and single storey houses in rural areas"*. In addition, they could state the differences between the professions of people living in cities and in villages such as *ED:"people can do farming and have livestock in a village, but these businesses may not be held in a city"*.

The children particularly gave the example of wind energy (windmill, etc.), but could not tell about solar and geothermal energy types. Çağlak (1999) in his experimental study of 5-6 age children who attended preschool institutions (n: 40) aimed to measure the effect of physical education activities in the development of the energy concept. An energy concept test and a physical education activities program were developed by this researcher. It was found that active learning was more effective than traditional teaching in the 5-6 age group children in the experimental group when the educational program implemented concerning the energy concept and physical education activities. Therefore, it may be concluded that active learning is therefore more effective than traditional training.

The experimental group children, after reading and examining the books in the training program and preparing recycle bins in group activities, were successful about recycling issues. The children in the experimental groups gave more examples of recyclable materials such as papers, cans, plastic and glass bottles, batteries and so on compared to the children in the control groups.

V. CONCLUSION AND SUGGESTION

It was found that as a result of this research examining the use of educational books and materials (i.e. books, models, globe, map, play dough, clay and wood materials and/or toys) are quite effective for the children to acquire geographical concepts. In other words, the geographical concepts can be easily acquired by all age group children starting from preschool when a careful program is implemented. Utilizing observations in the preschool education provide children to embody the geographical concepts. Since primary 1st and 2nd grade children are of Piaget's (2004) developmentally concrete operational period, they were less successful in learning geographical concepts than the experimental group of preschool children. In this case, this may be resulted from the transition from concrete conceptual at preschool to theme-based abstract teaching at the primary school level.

Another result of this research is to increase in the frequency of the experimental group children's use of sentences containing comparisons and cause-effect relations. Hence, it may be said that the implementation of the training program was effective for the acquisition of the reasoning skills.

The results of this study can provide some references for understanding of "how geography might be taught in preschool" proving that geography is not a subject to "fear" but just a start to new directions in our learning experience. Future research will likely widen this perspective by new findings.

The results can provide some references for the understanding that 'geography is useful for every stage in human life', even at the preschool period and makes life easier. It also supports to obtain attitude towards environmental values (Tanner, 2007) therefore, brings in a sense to our everyday lives.

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