

A Study on Learning Maths Symbols with the Help of Orienteering Practice

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Abstract: In this study, the comparison between learning Maths symbols with the help of orienteering practise and classical teaching method was studied. As a quasi-experimental model, the study was applied to 22 people, 11 of them as control and 11 of them as experimental group. The control and experimental groups were determined randomly in the same sample. The participants in the control group were given papers that had maths symbols with classical teaching method and were asked to study individually. The experimental group was asked to find the symbols written on 8X8 funnels with the help of the maps used for orienteering practise and write them on the edge of the map with an order. The students were asked to write the numbers and symbols that were placed on the targets in the stake orienteering practise on the given answer key for the orienteering racetrack most quickly and correctly. And meanwhile, this process was timed. After the study, the participants in both the experimental and the control group were assessed by means of a 10 question test as well as an interview. The findings obtained from the study were analysed with both quantitative and qualitative results. The quantitative part of the analyses was assessed with the SPSS programme. However, Mann Whitney U test was used for paired comparisons when the normality and homogeneity of the variances weren't acquired. Amongst the qualitative research methods, the basic qualitative research method was used for qualitative data. The descriptive analyses method was used for analysing the qualitative data.

Keywords: learning Maths, classical teaching, control, experimental.

INTRODUCTION

Orienteering started in the beginning of 20th century in Scandinavian countries and first emerged in Sweden [1]. Because of the geographic position of the region, the snow and fog decreased the range of vision for long periods. As the people had difficulty in finding the routes, they started to draw sketches to find the directions more easily and composed some criteria on the route in time. They started to draw more detailed maps parallel with the development of the technology [2]. Orienteering is the sport of finding the targets against time by running. In this sport, the targets are placed with a certain order. The participants try to find the targets in turn, with the help of given maps [3, 4].

This sport can be performed in different forms, terrains, ages, groups, and categories. It has spread quickly and gained importance from past to present. Throughout the history, people marked their rotas of land, sea and air voyages on the map and reached their destinations by finding their directions with the help of compasses [5]. Orienteering is a sport branch that has spread quickly recently and that draws attention of many people from 7 to 70. "Orienteering is a nature sport that can be performed on every sort of terrain and that athletes try to find the checkpoints with the help of maps and compasses. It is performed either individually

or as a team and generally at forestlands. The aim of the athletes is to find the targets that are placed on the terrain and marked on the map previously, by running and with least mistake [1]". With another description, orienteering is to use the skills of map reading in a flawless manner, complete concentration, and quick decision-making altogether by choosing the best rota between starting, check and finish points on mountainous and steep terrains. This open area hiking provides a unique and unbelievable experience [6]. Orienteering is a pretty healthy sport that requires intelligence as well as activating the body. It doesn't only foster the physique, it also improves your thinking and problem-solving skills when you are under pressure and stress [4]. Orienteering is a sport that is performed by people for years to find direction and compete as an outdoor sport. Besides, it is accepted as a sports branch by many countries [7].

The most important feature that differs orienteering from the other sports is that there isn't a leader to follow and a specified parkour. There are countless options that vary from athlete to athlete to reach the destination. There are many factors that matter alongside the physical features of the athletes [5]. Each sport has distinctive features. What differentiates orienteering from the other sports is to find and follow

the most appropriate rota at an unknown area. Orienteering requires some skills like map reading, evaluating the rota choice, the use of compass, concentration under stress, quick decision-making, and working at a natural terrain [8]. Orienteering is a sport that is performed individually only on the terrain by using compass map and various techniques and tactics and following each target on the checkpoints one by one [9]. Orienteering is a lifelong activity. The educators can motivate the students and improve their physical activity by using orienteering [4, 10]. It is also useful to use orienteering at physical education activities [11].

The aim for orienteering is to reach to the targets that are marked on the given maps with the numbers in turn and on time and to go back to the starting point and and to finish the race[12].

It is stated that orienteering has positive impact on the students' short term memory and attention as well as its parameters such as the maintainability of attention and focusing [13]. It is stated that orienteering has important contributions to physical education and gyms as well [14].

Orienteering is taught as a class at primary education in Western countries. In this classes, the knowledge of finding directions by means of maps and compasses is taught and similar practices are applied. It is stated that this class impacts the students' mentak and physical development positively and improves their decision making mechanism, and increase their ability to express themselves and the feeling of self confidence [15].

MATERIALS AND METHODS

In this study, the comparison between learning Maths symbols with the help of orienteering practise and classical teaching method was studied.

As a quasi-experimental model, the study was applied to 22 people, 11 of them as control and 11 of them as experimental group. The control and experimental groups were determined randomly in the same sample. The participants in the control group were given papers that had maths symbols with classical teaching method and were asked to study individually. The experimental group was asked to find the symbols written on 8X8 funnels with the help of the maps used for orienteering practise and write them on the edge of the map with an order. The students were asked to write the numbers and symbols that were placed on the targets in the stake orienteering practise on the given answer key for the orienteering racetrack most quickly and correctly. And meanwhile, this process was timed.

After the study, the participants in both the experimental and the control group were assessed by means of a 10 question test as well as an interview.the findings obtained from the study were analysed with both quantitative and qualitative results. At the end of the study, the data obtained from the experimental and control groups were compared.

RESULTS

When the mean of answers given by the participants in the control and experimental group to the 10 question test was assessed, the average of the experimental group was determined as 7,36±3.35 and the average of the control group was determined as 3,36±2.11. the arithmetic mean of the experiment group was higher.

When the assessment results of the experimental and control groups' symbol test data are examined, a significant difference was observed in favour of the experimental group (p<0.05).

Table-1: The Mann Whitney U test results of the experimental and control group

Symbol test	N	Mean Rank	Rank Sum	U	P
Control	11	7,91	87,0	21,000	0,008*
Experimental	11	15,09	166,00		

(p<0.05)*

Table-2: The participants' views about the learning method

The Participants
7 People stated that they had difficulty in learning the symbols in classical teaching method
4 People stated that the theory and application should be used simultaneously
10 People stated that application is more favourable compared to the classical learning
1 Person didnt want to state any view as she/he performed the application for the first time

Table-3: The participants' views about the orienteering branch

Participants	N	Yes	No
Experimental	22	10	1
Control		3	8

When the participants' views about whether they think of doing orienteering or not were examined, 10 people approved and 1 of them disapproved it in the experimental group. In the control group, 3 of them approved and 8 of them disapproved it.

CONCLUSION AND DISCUSSION

In this study, it has been observed that people were able to learn the symbols more easily and correctly by doing orienteering [16]. It is stated that the subjects related to science, geography, maths and physical education should be approached as a very enjoyable activity instead of a class with the help of orienteering [17]. Atakurt *et al.* states in a study they carried out in 2017 that orienteering has a positive effect on the children's memory and attention level. Given that a classroom, the school building, the school garden and even a small park can be used as an orienteering raceway, there won't be any difficulty in finding an area [5]. The orienteering education that was applied to the students with 11-13 age group for 8 weeks has positive effect on spatial anxiety and visualisation [18].

The improvement in orienteering may effect the understanding of general problem solving [19], and orienteering makes contribution to cognitive development [20]. In the orienteering sport, all the decisions are made by the players themselves. This identifies the players' personality [21]. It is stated that orienteering has important contributions to their social, individual, mathematical and logical developments [22]. It is stated that under stressful conditions, those who don't do orienteering experience more lack of self-confidence when compared to those who do orienteering [23]. It is also stated that orienteering has an important effect on socialising during the process of socialising [24].

Consequently, considering the quantitative and qualitative results, learning maths with the help of orienteering applications seems to have more positive effect on the learning skills when compared to learning maths with classical education system. It has been observed that the participants opine that the practises has more positive effect on increasing the success with the help of enjoyable sports activities. Orienteering applications may be integrated to the education system. Also, when they were asked if they think of doing orienteering, the majority of the participants in the experimental group gave a positive opinion. However, the participants in the control group partly gave positive opinion.

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