International Peer Reviewed Journal
IPERJ
INTERNATIONAL PRIMARY EDUCATION RESEARCH JOURNAL

Examination of Teachers' Views on the Use of Orienteering in Education

Oryantiringin Eğitimde Kullanılmasına İlişkin Öğretmen Görüşlerinin İncelenmesi

Fatma Gül UZUNER[1]
Fatih BEKTAŞ[2]

***doi:*10.38089/iperj.2024.157**

Geliş Tarihi: 07.12.2023 Kabul Tarihi: 25.01.2024 Yayınlanma Tarihi: 31.03.2024

Abstract: In addition to being an outdoor sport, orienteering can also be considered as a way of learning. In this context, the opinions of teachers who have experience in orienteering are important. Therefore, the research aimed to examine the opinions of teachers working in basic education, secondary education and high school regarding the use of orienteering in education. The aim of this study was to examine teachers' views about the use of orienteering in education. For this purpose, a phenomenological research method was used. The study group of the research consisted of 81 teachers selected by convenience sampling and criterion sampling techniques. A semi-structured questionnaire, metaphors and field notes were used as data collection tools. The data were subjected to thematic analysis. As a result of the analysis of the data, it was concluded that orienteering can be used as an educational purpose and tool at all levels of education, especially the primary education level. As a matter of fact, it has been concluded that orienteering can provide very effective outcomes in all areas of development at all ages. As a result of the data analysis, it was concluded that orienteering can be used in the context of a goal and a tool in the education process. In this context, it can be recommended that more applied and different research studies are conducted on the use of orienteering in education.

Key Words: Orienteering, outdoor learning, way of teaching, teaching technique

Özet: Oryantiring bir doğa sporu olmasının yanı sıra aynı zamanda bir öğrenme yolu olarak da düşünülebilir. Bu bağlamda oryantiringle ilgili deneyim sahibi öğretmenlerin görüşleri önemlidir. Dolayısıyla yapılan araştırmada, oryantiringin eğitimde kullanılabilmesine ilişkin temel eğitim ve ortaöğretim kademesinde görev yapan öğretmen görüşlerinin incelenmesi amaçlanmıştır. Bu amaçla fenomenoloji araştırma yöntemi kullanılmıştır. Araştırmanın çalışma grubunu uygun durum örneklemesi ve ölçüt durum örneklemesi tekniklerine göre seçilen 81 öğretmen oluşturmaktadır. Veri toplama aracı olarak yarı yapılandırılmış anket, metafor formu ve alan notları kullanılmıştır. Veriler tematik analize tabi tutulmuştur. Verilerin analiz edilmesi sonucunda oryantiringin eğitim sürecinde temel eğitim kademesi başta olmak üzere bütün eğitim kademelerinde eğitsel bir amaç ve araç bağlamında kullanılabileceği sonucuna varılmıştır. Nitekim oryantiringin her yaştan bütün gelişim alanları noktasında oldukça etkili kazanımlar sağlayabileceği sonucuna da varılmıştır. Bu bağlamda, oryantiringin eğitimde kullanılmasına ilişkin uygulamalı ve farklı araştırmaların daha fazla yapılması önerilebilir.

Anahtar Kelimeler: Oryantiring, okul dışı öğrenme, öğretim yolu, öğretim tekniği

[1] Assit. Prof. Dr., Kafkas University, Türkiye, fgu61@hotmail.com, https://orcid.org/0000-0001-8483-6021
[2] Prof. Dr., Trabzon University, Türkiye, fatihbektas61@gmail.com, https://orcid.org/0000-0002-4569-4662

Introduction

Orienteering can be defined as running, jogging or walking on a predetermined course with the aid of a map and compass (Bradford, 1977). Not only does orienteering have a connection with a number of curricula in education, but there are also many skills that it fosters in students (McNeill & Palmer, 2005). As a matter of fact, orienteering is quite a good tool in the development of skills (decision making, problem solving, cooperative learning, self-esteem, etc.) (Kelly, 2014). From this perspective, the following question may be asked: "Can orienteering be used as a teaching technique?" With reference to that question, it can be argued that the opinions of teachers who are familiar with orienteering as well as having relevant experience in orienteering are of great importance. This study, therefore, examined teachers' views on the use of orienteering as a teaching technique, and is believed to contribute to the relevant literature in relation to the techniques used in both orienteering and education. It should also be noted that orienteering has the potential to contribute to individuals in many ways, even only as a sport itself.

What is Orienteering?

Orienteering can be discussed in connection with out-of-school adventure (Bomgardner, 2014), adventure education (Slentz & Chase, 2003), or out-of-school education (Balkwill, 1996; Eaton, 2000). However, out-of-school education is directly linked to experiential learning, and adventure education is also comprised under out-of-school education (Childs, 1986). Experiential learning is considered to include such concepts as concrete experience, reflective observation, abstract conceptualization, and active experimentation (Kolb, 2015), relating to orienteering. In orienteering, there is an active transformation (active/reflective) between the comprehension of direct and indirect concrete experiences (abstract/concrete) and the inner and outer world. In out-of-school education, students investigate physical and biological situations, are interested in the things they see around them since they are curious and analytical, enjoy being themselves in a natural environment, and may need to use mathematical and scientific skills (Balkwill, 1996). Out-of-school education, or adventure education, on the other hand, draws its power from achieving educational goals from outside school and on the basis of its activity-based construct (Childs, 1986). Many components of the philosophy of adventure education are associated with out-of-school education. Although adventure education is perceived as a methodology that includes the development of out-of-school education programmes in many aspects, it is in fact only one aspect of out-of-school education. For this reason, the activities carried out through adventure education are more limited (Childs, 1986). Orienteering is one of these activities (Slentz & Chase, 2003).

Known as a cross-country navigation using maps and compasses, orienteering is indeed Scandinavian in origin and began as a military exercise. The Swedish scout leader, Ernst Killander, used the Swedish countryside to attract more young people to athletics. Killander prepared courses that would require young people to use maps and compasses. The great success achieved by the first contests was an incentive for the spread of this activity to large groups of people. Later, orienteering spread rapidly in Scandinavia and beyond (Boga, 1997; Disley, 1979).

Having spread rapidly around the world, this sport actually has its own characteristics. As an example, orienteering is an outdoor sport that enables the brain and body to work together (Bradford, 1977; Larkin & Grogger, 1975; Paliichuk et al., 2018), is challenging (Sension-Hall, 2011), and has exciting features (British Orienteering, 2021). At the same time, orienteering is an elite sport that combines the physical activity of running with map-reading and route-finding skills (Stone, 1994). For that reason, orienteering is also referred to as 'cunning running' (Kelly, 2014). There are some processes for the participants to go through in this cunning run (Kelly, 2014). Orienteering is a sportive process consisting of a starting point, a finishing point, and other specially prepared locations known as checkpoints (Golden, Levy & Vohra, 1987). It is necessary to pay attention to the following aspect for the purpose of winning the orienteering race. Orienteering involves finding your way around a determined route by using a map (Champion, 2010). This sport is played against the clock on a course consisting of checkpoints located in the forest (Côté & Kirk, 2005; Golden et al., 1987). Because of such basic components, orienteering is a lifelong skill that individuals of all ages can learn in both rural and urban areas (Hammes, 2007). During the activity, the participants try to achieve the fastest time by visiting all the locations from start to finish within a certain time with the help of a map and compass (Golden et al., 1987). In addition, you can adjust your speed as you wish (walking, jogging or running)

during orienteering (Champion, 2010). Those who have completed the course in the shortest time win the competition (Côté & Kirk, 2005). As a result, orienteering successfully brings together physical and cognitive energy in the background of positive emotions (Vaskan et al., 2019).

The Relationship between Orienteering and Education

Orienteering is part of education programmes in Türkiye and in the world (Bektaş et al., 2019). Teachers, too, have realised that orienteering relates to many disciplines in new and interesting ways (Ferguson & Turbyfill, 2013). Since orienteering is a valuable sport and an exciting tool for studying, educators may wish to teach it to their students after the necessary preparations have been made. However, for this purpose, educators should be able to teach orienteering and develop a programme that includes the subjects in the curriculum. Educators can integrate their academic programme into the orienteering programme by using their time, imagination and energy. In this sense, it can be suggested that there are many possibilities that will enable the adaptation of several forms of orienteering (route, line, score, point-to-point orienteering, etc.) to curricula (Bradford, 1977). Orienteering not only has an infrastructure that can develop many skills, but it can also be taught initially in school gardens after class, or in parks or forests (Kelly, 2014). It may, thus, be essential to first draw the area to be studied with orienteering and then to plan an activity on the drawn map (Bektaş et al., 2019).

Teaching orienteering can begin in the classroom and then continue outside (Arnsdorf, 1978). Connections between orienteering and education programmes can be established; the facts, skills and knowledge can be taught, and positive attitudes and values can be fostered. Orienteering contributes to teaching such school subjects as physical education, mathematics, geometry, English, history and technology; to encouraging certain skills (communication, mathematics, graphics, problem solving, etc.); to providing education about health, environment and citizenship; and to teaching programmes in subjects related to multicultural thinking, gender issues and special education. In addition to these, there are many skills that orienteering fosters in students (McNeill & Palmer, 2005). At this point, orienteering can be integrated into curricula starting from pre-school to university, and thanks to this integration, students can explore new areas of learning in many different subjects. Orienteering is a valuable tool for developing decision making, problem solving, collaborative learning and self-esteem (Kelly, 2014). It can also be argued that these skills are consistent with Partnership for 21st Century Skills, (2019) in many aspects.

Orienteering is primarily known as a nature sport, which may have many-sided contributions to individuals. However, it can also be argued that orienteering has an adaptive nature for many purposes, some of which have been reported in two different academic studies, the first of which belonged to Uzuner (2019) who aimed to improve the mathematical problem solving skills of primary school students using orienteering and placed a mathematical problem that can be solved with specific materials in the last stage of the orienteering goals. In the study, the preliminary goals included students' doing orienteering in the school garden by only finding the goals, and in the last goal, they ended the process by solving the math problem at the target. In the said study, orienteering was utilized both as a sport and a teaching technique, and the researcher concluded that students' mathematical problem solving skills improved. Furthermore, Uzuner and Şahin (2021) examined the impact of orienteering on the development of attention, metacognitive awareness and social problem-solving skills of students with ADHD. As a result of the study, in which the students only did orienteering, it was concluded that the students' attention, metacognitive awareness and social problem solving skills improved. Further examples included the study conducted by Taş (2010), who argued that those who are interested in orienteering are more successful in coping with stress, and by Sağlamol, Tüzkan and Acar (2015), who discussed democracy teaching through orienteering. Likewise, Atakurt, Şahan, and Erman (2017) and Vaskan et al. (2019) stated that orienteering has positive effects on attention, memory and cognitive activities, and moreover, Harput, Çağlayan and Bilici (2015) tried to make students get to know the Ancient City of Ephesus through orienteering within the scope of a relevant project. Deniz, Yoncalık, Aslan and Sofi aimed to teach orienteering through creative drama, which is also known as a teaching method, and to specify its effects. Cataldi, Bonavolontà, and Fischetti (2021) also examined the relationship between orienteering training and the development of short-term visuospatial memory, and yielded positive results. Moreover, Notarnicola et al. (2012) suggested that orienteering be included in primary education; and Vukadinović, Juhas & Kozoderović (2015) concluded that orienteering should be organized in schools, and Tanrıkulu (2011) indicated that orienteering should be benefited from in

all educational levels. From this point of view, it can be argued that the use of orienteering as a sport and/or teaching technique is regarded to have positive effects on individuals. In addition, it can also be suggested that the contributions of orienteering to individuals are consistent with the framework of the 21st century skills, which is a remarkable aspect. Such skills are known to play an important role in students' readiness for the 21st century (Partnership for 21st Century Skills, 2019), and in this connection, orienteering can be assumed to be indirectly efficacious. However, it should be noted in this regard that it is necessary for teachers to possess relevant skills (Erten, 2019). This being the case, it is clear that teachers should be very careful in teaching practices where they plan to use orienteering as a teaching technique. First of all, it should be well established for what purpose orienteering will be used in the education process. Utmost care should, therefore, be taken to ensure that the relevant educational goal can be integrated with orienteering. For that purpose, it may be useful to be aware that orienteering requires a proper preparation in conformity with the constructivist approach. It may also be necessary to take into account many factors such as the course to be used for orienteering as well as the materials to be used and the motivation of the students. Otherwise, orienteering, which has a strong potential, may lose its effect in teaching applications. One should, therefore, be aware that drawing on orienteering as a teaching technique requires a strong foundation. Considering all these factors, it can be argued that orienteering possesses an important potential for educational purposes and 21st century skills in an interdisciplinary sense.

In this context, it may be worth investigating the discussion of orienteering as a sportive teaching technique, since it has a structure that is adaptable to many disciplines and is effective in fostering skills in contemporary understandings of education.

This study is, therefore, believed to contribute to the literature on orienteering, teaching techniques, and sport. The relevant literature review has shown that there are studies focusing on the use of orienteering for various purposes related to the field of education (Atakurt et al., 2017; Paliichuk et al., 2018; Pouya, Demir, & Demirel, 2017; Vaskan et al., 2019). From the educational point of view, the views of teachers who are trained in orienteering and are actively involved in orienteering indeed play a critical role in this regard. In other words, teachers, evidently at least as much as orienteering, have a very active role in the development of their students' skills to get prepared for the 21st century. Therefore, in this study, teachers' views on the use of orienteering in education have been examined. It is thought that teachers' opinions on the use of orienteering in different fields will contribute to the field. Although there are different studies in the relevant literature, it is thought that it is important to consider orienteering in a more general context as a way of teaching in a theoretical context.

Method

Research Design

Phenomenology focuses on how people describe something they have experienced (Patton, 2002), or on describing the essence of the experience (Merriam, 2009). In other words, it tries to understand people's perspectives regarding themselves and their environment (Robson, 2011). In this study, a phenomenological research method was adopted since the basic aim was to reveal the main structure of the experiences of teachers who received orienteering training and had experience related to this (Creswell, 2013).

Participants

The participants were selected based on criterion sampling, maximum variation sampling, and convenience sampling strategies (Patton, 2002), which are among the purposive sampling strategies. In criterion sampling, participants are selected according to certain predetermined criteria (Patton, 2002). In this context, two criteria were determined, first of which was the precondition that the teachers had received orienteering training, and second was that they had enough experience related to orienteering for educational purposes. Furthermore, due to the interdisciplinary nature of orienteering (McNeill & Palmer, 2005), an attempt was also made to reach teachers from different branches as much as possible within the scope of maximum variation sampling. In fact, in the maximum variation sampling strategy, the aim is to reveal the common experiences of the different cases (Patton, 2002). Finally, those of the contacted teachers who volunteered were included in the study within the scope of convenience sampling. Table 1 and Table 2 presents the relevant information on the 81 teachers being accessed that way.

Table 1. Information about the study group: Branches of teachers

Participants' branches, frequencies (f) and codes (C)	Physical Education Teacher (PET), (f=56), Primary School Teacher (PST) Teacher, (f=3) Information Communication Teacher (ICT), (f=2) Psychological Counselling and Guidance Teacher (PCGT), (f=2) Special Education Teacher (SET), (f=2) Turkish Language and Literature Teacher (TLLT), (f=2) Turkish Teacher (TT), (f=1) Social Sciences Teacher (SST), (f=1) Mathematics Teacher (MT), (f=1) Elementary Mathematics Teacher (EMT), (f=1) History Teacher (HT), (f=1) Philosophy Teacher (PT), (f=1) English Teacher (ET), (f=1) Building Design Teacher (BDT), (f=1) Art Teacher (AT), (f=1) Technology Design Teacher (TDT), (f=1) Machine Teacher (MT), (f=1) Electricity Teacher (ET), (f=1) First Aid Teacher (FAT), (f=1) Motor Vehicle Technology Teacher (MVTT), (f=1)

As can be seen in Table 1, teachers from many different branches participated in this study, but physical education teachers outnumbered the others.

Table 2. Information about the study group

Participants' age ranges	20-30 years f=14, 17.28%	31-40 years f=28, 34.57%	41 years and over f=39, 48.15%
Participants' years of experience	0-10 years f=29, 35.80%	11-20 years f=30, 37.04%	21-30 years f=22, 27.16%
Participants' education level	Bachelor's f=74, 91.36%	Master's f=7, 8.64%	Doctorate f=0, 0%
Duration of participants' interest in orienteering	0-10 years f=69 85.19%	11-20 years f=11 13.58%	21-30 years f=1 1.23%
Participants' duties in the field of orienteering	Referee only: f=14, 17.28% Trainer only: f=13, 16.05% Athlete only: f=7, 8.64% Trainer, referee and athlete: f=7, 8.64% Trainer, referee, mapper and athlete: f=5, 6.17% Provincial representative only: f=4, 4.94% Trainer, referee, mapper, provincial representative and athlete: f=4, 4.94% Trainer and athlete: f=4, 4.94% Referee and athlete: f=4, 4.94% Trainer and referee: f=3, 3.70% Trainer, referee and provincial representative: f=3, 3.70% Referee and provincial representative: f=3, 3.70% Trainer, athlete and chairperson: f=2, 2.47% Instructor: f=2, 2.47% Referee and instructor: f=2, 2.47% Trainer and provincial representative: f=1, 1.23% Trainer, referee and sporting director: f=1, 1.23% Trainer, referee and club chairman: f=1, 1.23% Trainer, referee, provincial representative and athlete: f=1, 1.23%		

As can be seen in Table 2, it appears that most of the participants had bachelor's degrees, were aged over 30, had between 0-20 years of experience, and had been involved in orienteering for between 0-10 years. Moreover, it is also seen in Table 1 that the participants had different duties (referee, trainer,

mapper, etc.) in the field of orienteering. In addition, both researchers have the necessary training, certification and duties in the field of orienteering.

Instruments

Personal information form: The personal information form contains the questions asked in order to see the general profile of the participants. Table 1 provides the necessary information related to the questions asked in the personal information form.

Questionnaire: This study employed an online questionnaire, one of the modern questionnaire methods (Coşkun, Altunışık & Yıldırım, 2017; Gliner, Morgan & Leech, 2017). Questionnaires can be used within the scope of qualitative research approaches (Gliner et al., 2017). They can include open-ended, partially closed-ended, and closed-ended questions with ordered and unordered choices (Salant & Dillman, 1994). A questionnaire was prepared and applied by attempting to pay attention to the steps specified by Salant and Dillman (1994), aiming at conducting a successful survey process and also to the steps specified by Robson (2011) for an online questionnaire. First of all, the draft questionnaire questions were prepared by the researchers, a pilot implementation of the questionnaire was conducted with six people, the questionnaire was reviewed by experts and given its final form, after which the data were collected, analysed and reported. The questionnaire was composed of 2 closed-ended and 11 open-ended questions. The closed-ended questions contained "yes", "no" and "partially" options and consisted of the questions that reads: "Have you used orienteering as a teaching technique?" and "Do you think orienteering should become widespread in schools?" The open-ended questions, on the other hand, contained the kind of questions focusing on how the participants defined orienteering, why they found orienteering interesting, and what activities they conducted regarding orienteering. After that, the questionnaire included the participants' views on the skill development of orienteering, its benefits, how it could be integrated into education and in which schools and in what ways it could be developed.

Metaphor: Metaphors are more than mere rhetoric (Saban, 2004) and are one of the ways of construing meaning (Miles & Huberman, 1994). First of all, a draft metaphor question was prepared and feedback was received from a domain expert who had published scientific studies on metaphors, and a pilot implementation was conducted with one teacher. Accordingly, the metaphor question was given its final form, and the teachers participating in the questionnaire were asked to fill in the metaphor form appropriately. In this way, the data collection process for the metaphors was completed.

Field notes: Field notes have a descriptive structure and include an observer's own feelings and thoughts about the nature of the subject being observed (Patton, 2002). In this context, one of the researchers (F. G. Uzuner) took field notes in the applied training sessions related to orienteering that she attended. The notes taken in different time periods and within the scope of different implementations were given in the form of direct quotations in the Results section. Accordingly, the researcher's direct field notes were included, along with the date, location and content information of the training for which the field notes were taken.

Data Collection Procedure

In this study, first of all the data collection tools (questionnaire, metaphors) were prepared. Regarding the data collection process related to the questionnaire and metaphors, firstly, the necessary ethics committee permission was received from the authorised units, after which the teachers were contacted so that they would provide data to serve the purpose of the study. To that end, teachers from different branches were contacted and given necessary information, and as a result, they voluntarily participated in this study. In an effort to collect field notes during the data collection process, the researcher took various notes about her observations and experiences in the context of "How can orienteering be used in education?" in the training sessions related to orienteering that she attended. In order to be practical and immediate, the notes were first recorded in the form of audio recordings and then transcribed. The data collection process related to the questionnaire, metaphor and field notes can be summarised in this way.

Data Analysis and Quality

An inductive content analysis approach was adopted due to the interaction between the researcher and the data, and concepts were reached as a result of this interaction (Patton, 2002). A thematic coding

analysis was adopted for the analysis of the qualitative data. Accordingly, the data were analysed by following the steps of thematic coding with a constructivist approach based on the experiences of the participants (Robson, 2011). Consequently, the data were first read several times, the basic codes were generated, the themes were created based on the basic codes, the codes and themes were reviewed, the thematic networks were created, and the integration and interpretation stage, which was the final stage, was initiated.

Triangulation was utilised in order to increase the quality of the study, in which more than one data collection tool, namely the questionnaire, metaphors and field notes, were used by two researchers conducting the research. Data and researcher triangulation strategies were utilised in accordance with Denzin's method (1978). The selection of the sample group was made as diverse as possible and every stage of the research process was recorded in detail as much as possible (Merriam, 2009). In terms of the quality of the research, metaphors, comparisons and consistencies as a whole were used; possible researcher influence was taken into consideration and triangulation was performed (Miles & Huberman, 1994). In this way, an attempt was made to increase the quality of the research.

Ethical Procedure

This study was carried out by obtaining the necessary ethics committee permission from Kafkas University Social Sciences and Humanities Scientific Research and Publication Ethics Committee. The respondents participated voluntarily, and ethical rules were taken into account throughout the study.

Results

The participants were asked questions about how they defined orienteering, why orienteering was interesting, and how orienteering benefited individuals. The results are presented in the following tables and the necessary explanations are given under relevant tables. Participants' views on the definition of orienteering are given in Table 3.

Table 3. Orienteering Sport

Main Theme: Orienteering Sport
Subthemes (S) / Codes (C) / (frequency)
S1. Sporting: C1, C4, C5, C7, C8, C10, C12, C13, C15, C16, C19, C20, C23, C24, C26, C29, C30, C31, C34, C43, C44, C45, C48, C50, C51, C55, C58, C60, C61, C62, C63, C66, C67, C68, C69, C70, C72, C73, C74, C75 (f=40)
S2. Developmental: C3, C11, C14, C17, C18, C21, C22, C25, C27, C32, C33, C36, C37, C38, C39, C40, C41, C42, C46, C47, C49, C52, C54, C65, C71 (f=25)
S3. Entertaining: C2, C6, C9, C28, C35, C53, C56, C57, C59, C64 (f=10)
Codes (C) / (frequency)
C1. Intertwined with nature (f=25) C2. Fun and entertaining (f=21) C3. Requiring and developing physical and cognitive strength (f=13) C4. Involving target finding (f=9) C5. Can be done by individuals of all ages (f=8) C6. Physically and mentally relaxing (f=7) C7. Requiring intelligence (f=7) C8. Elite (f=6) C9. Exciting (f=6) C10. Involving direction finding (f=6) C11. Developing the mind (f=6) C12. Involving movement (f=6) C13. Requiring speed (f=5) C14. In which people can discover themselves (f=6) C15. Involving running (f=5) C16. Requiring use of a map (f=4) C17. Requiring good decision-making skills (f=3) C18. Requiring quick decision making (f=3) C19. Mysterious (f=3) C20. Nature-friendly (f=3) C21. Evoking a feeling of achievement (f=3) C22. Educational (f=4) C23. Different and wonderful (f=3) C24. Enabling discovery of nature (f=3) C25. Building and developing self-confidence (f=2) C26. Requiring study (f=2) C27. Developing decision-making skills (f=2) C28. Similar to playing chess by running (f=2) C29. Requiring use of a compass (f=2) C30. Requiring fitness (f=2) C31. Can be done anywhere (f=2) C32. Fostering new experiences (f=2) C33. Instructive (f=2) C34. Should be done by everyone (f=2) C35. Calming (f=2) C36. Having interdisciplinary potential (f=2) C37. Having very positive effects on students (f=2) C38. Requiring multiple intelligence (f=1) C39. Requiring map interpretation (f=1) C40. Requiring decision-making skills (f=1) C41. Requiring visual intelligence (f=1) C42. Requiring strategy (f=1) C43. Done on unknown open terrain (f=1) C44. Making one feel individual strength (f=1) C45. Making one feel team strength (f=1) C46. Developing self-confidence (f=1) C47. Developing life skills (f=1) C48. Involving competition (f=1) C49. Requiring concentration (f=1) C50. Enabling feedback (f=1) C51. Involving adventure (f=1) C52. Requiring quick thinking (f=1) C53. A fun teaching technique (f=1) C54. Liberating (f=1) C55. Involving several sports (f=1) C56. Like solving a puzzle (f=1) C57. Like finding treasure (f=1) C58. Requiring equipment (f=1) C59. A recreational sport (f=1) C60. Requiring map knowledge (f=1) C61. Requiring agility (f=1) C62. Supporting training aimed at travel (f=1) C63. Enabling one to keep healthy (f=1) C64. Allowing one to play chess in the field (f=1) C65. Developing problem-solving skills (f=1) C66. Involving finding targets as quickly as possible (f=1) C67. Requiring the individual to use a number of body systems (f=1) C68. Suitable for the make-up of the Turks (f=1) C69. Requiring physical and mental harmony (f=1) C70. Requiring knowledge, skill and courage (f=1) C71. Developing reasoning skills (f=1): P74 C72. Requiring psychological strength (f=1) C73. A sport that is the modern version of scouting (f=1) C74. A race (f=1) C75. Challenging (f=1)

As shown in Table 3, it can be seen how the participants defined orienteering. Accordingly, it can be understood that in general, the participants considered that orienteering is intertwined with nature, entertaining and mysterious; that it requires physical, cognitive and psychological energy; that it necessitates the use of many different skills and at the same time develops these skills; that it needs equipment (a map and compass) and involves finding targets in unknown terrain; that it requires intelligence, speed, fitness and decision-making skills; that it involves adventure and allows the individual to discover him/herself; and that it is a recreational and liberating sport and at the same time a fun teaching technique. In addition, the participants also associated orienteering with puzzles, finding treasure, chess and scouting, and stated that it encompasses several sports and has an interdisciplinary potential. It can, therefore, be assumed said that orienteering is a multi-faceted outdoor sport with a high potential and that it is also a teaching technique. Orienteering can be also regarded a sport that can be beneficial in many ways at the same time. These multiple benefits of orienteering to individuals can be

classified in three ways as entertaining, developing and sporting. Table 4 presents the benefits of orienteering for individuals according to the views of the participants.

Table 4. Benefits of orienteering

Main Theme: Benefits of orienteering	
Subthemes (S) / Codes (C) / (frequency)	
S1. Cognitive: C2, C3, C4, C6, C8, C11, C12, C13, C14, C15, C16, C17, C18, C19, C21, C26, C27, C33, C34, C39, C41, C43, C47, C48, C49, C52, C53, C55, C58 (f=29)	
S2. Affective: C7, C9, C10, C20, C22, C23, C24, C29, C30, C31, C32, C35, C36, C40, C44, C45, C46, C54, C56, C57, C59 (f=21)	
S3. Physical: C1, C5, C25, C28, C37, C38, C42, C50, C51 (f=9)	
Codes (C) / (frequency)	
C1. Physical skills, (f=46)	C30. Competitive skills, (f=3)
C2. Mental skills, (f=43)	C31. Ability to work with a group, (f=3)
C3. Decision-making skills, (f=39)	C32. Develops a sense of helpfulness, (f=3)
C4. Reasoning skills, (f=34)	C33. Critical thinking skills, (f=3)
C5. Active and healthy life skills, (f=33)	C34. Visual memory skills, (f=3)
C6. Problem-solving skills, (f=29)	C35. Communication skills, (f=3)
C7. Self-confidence, (f=26)	C36. Crisis management skills, (f=3)
C8. Thinking skills, (f=24)	C37. Strength, (f=3)
C9. Psychological wellbeing, (f=24)	C38. Coordination, (f=3)
C10. Social skills, (f=20)	C39. Ability to relate location with direction, (f=3)
C11. Direction-finding skills, (f=18)	C40. Self-control skills, (f=3)
C12. Nature recognition and conservation skills, (f=18)	C41. Sense of achievement, (f=2)
C13. Ability to protect and love nature, (f=13)	C42. Agility, (f=2)
C14. Map-reading skills, (f=12)	C43. Creative thinking skills, (f=2)
C15. Spatial thinking skills, (f=9)	C44. Uplifting, (f=2)
C16. Attention and focusing skills, (f=9)	C45. Recreational, (f=2)
C17. Lateral thinking skills, (f=7)	C46. Feeling of freedom (f=1)
C18. A number of interdisciplinary skills, (f=7)	C47. Ability to multitask (f=1)
C19. Reflective thinking skills, (f=6)	C48. Measurement skills, (f=1)
C20. Courage, (f=6)	C49. Three-dimensional thinking skills, (f=1)
C21. Self-awareness skills, (f=5)	C50. Speed, (f=1)
C22. Ethical skills, (f=5)	C51. Balance (f=1)
C23. Ability to take responsibility, (f=5)	C52. Association skills, (f=1)
C24. Ability to act with perseverance, (f=5)	C53. Visual reading skills, (f=1)
C25. Endurance, (f=5)	C54. Self-efficacy, (f=1)
C26. Strategic thinking skills, (f=4)	C55. Ability to use technology, (f=1)
C27. Memory skills, (f=4)	C56. Cultural development, (f=1)
C28. Fitness, (f=4)	C57. Patience, (f=1)
C29. Ability to act alone, (f=4)	C58. Animal loving and protection skills, (f=1)
	C59. Empathy skills, (f=1)

As seen in Table 4, the opinions of the participants indicate that orienteering is seen as a sport that develops the individual in many ways (cognitive, emotional, and physical). It appears that, in general, the participants were of the opinion that orienteering has multiple benefits for individuals in terms of cognitive, physical, social, psychological and personal aspects, which are similar to the basic aims of education. Table 5 illustrates the views of the participants on how orienteering can be used more specifically in education.

Table 5. Orienteering in the education

Main Theme: Orienteering in the Education
Subthemes (S) / Codes (C) / (frequency)
S1. Orienteering as a tool (Teaching technique): C1, C3, C4, C5, C8, C10, C12, C18, C19, C20, C21, C22, C24, C25, C26, C30, C31, C32, C33, C34 (f=20)
S3. Orienteering as both a tool and a goal (Teaching technique and sport/game): C2, C14, C15, C16, C17, C23, C27, C28, C29 (f=9)
S2. Orienteering as a goal (Sport/game): C6, C7, C9, C11, C13 (f=5)
Codes (C) / (frequency)
C1. It can be used in the education process in a game format. (f=19)
C2. It contributes to holistic development and education. (f=16)
C3. It contributes to the education process. (f=11)
C4. It is an educational tool. (f=8)
C5. It can be used to teach subjects in all courses. (f=8)
C6. Orienteering activities can be organised within the school. (f=7)
C7. It can be used as part of extracurricular activities at school. (f=7)
C8. It contributes to active learning. (f=5)
C9. It can be used in out-of-school learning processes. (f=5)
C10. The learning process can be designed by placing the outcomes in the objectives. (f=4)
C11. Running activities can be organised. (f=4)
C12. It facilitates learning. (f=3)
C13. It contributes to daily life. (f=3)
C14. Orienteering should be widely included in the curriculum. (f=3)
C15. Orienteering can motivate students. (f=2)
C16. It enables learning while having fun. (f=2)
C17. It can be used in sporting activities within the scope of the course. (f=2)
C18. It can be used in language instruction. (f=2)
C19. It can be used in teaching the subjects in the social studies course. (f=2)
C20. It can be used in teaching subjects that require visual reading. (f=2)
C21. It can be used for teaching students within the scope of special education. (f=2)
C22. It can be used for teaching individuals with special needs. (f=1)
C23. It can be used for the development of many skills. (f=1)
C24. It can be used in the teaching of many subjects. (f=1)
C25. It can be used in the life sciences course. (f=1)
C26. It can be used in the science course. (f=1)
C27. It can be used for teaching time management. (f=1)
C28. Orienteering activities can be organised in the classroom. (f=1)
C29. Orienteering can be done at home. (f=1)
C30. It can be used in teaching foreign languages. (f=1)
C31. It can be used to teach the subjects in the basic courses. (f=1)
C32. It can be used in group activities. (f=1)
C33. It can be used in teaching the subjects in the biology course. (f=1)
C34. It can be used in teaching the subjects in the history course. (f=1)

As is shown in Table 4, orienteering can be used in many disciplines and in many different ways. In this connection, orienteering can be regarded both as a means to achieve learning outcomes and as a goal in fostering many skills on its own in the education process. For example, when we look at the statements of the participants, orienteering is not only regarded as a game that supports holistic development in education, but is also regarded as an educational tool. The given opinions also exemplify the necessity of using orienteering as a goal and tool in education. The participants' views on the practices that should be introduced and taught to students regarding this functional and beneficial structure of orienteering are given in Table 5.

Table 5. Introducing and teaching orienteering

Main Theme: Introducing and Teaching Orienteering
Subthemes (S) / Codes (C) / (frequency)
S1. Orienteering activities should be organised: C4, C5, C7, C10, C12, C13, C14, C15, C16, C19, C21, C27, C29, C30, C31, C32, C33, C35, C36, C37, C38, C40, C44, C47, C48 (f=25)
S2. Orienteering training should be provided: C2, C3, C8, C11, C17, C18, C20, C22, C23, C25, C26, C28, C41, C42, C43, C45, C46, C49, C50, C51, C52 (f=21)
S3. Orienteering should be promoted: C1, C6, C9, C24, C34, C39 (f=6)
Codes (C) / (frequency)
C1. Orienteering should be introduced to teachers. (f=20)
C2. Orienteering should be taught as a course. (f=18)
C3. Studies on orienteering teaching should be conducted. (f=18)
C4. Students should be enabled to participate in out-of-school competitions. (f=15)
C5. Training related to orienteering should be done. (f=15)
C6. Activities promoting orienteering should be carried out. (f=15)
C7. Orienteering competitions should be held and increased. (f=14)
C8. Orienteering should be added to the physical education and games/sports course as a separate unit. (f=13)
C9. Promotional activities related to orienteering should be carried out in schools. (f=11)
C10. The Ministry of National Education, Ministry of Youth and Sports and Orienteering Federation should work together. (f=10)
C11. Orienteering education should be given to students starting from basic education. (f=9)
C12. Activities using different orienteering trails and techniques should be conducted. (f=9)
C13. Club competitions related to orienteering should be held. (f=7)
C14. Schools should be supported with regard to materials. (f=7)
C15. Orienteering competitions should be held for students. (f=6)
C16. School sports competitions related to orienteering should be held. (f=6)
C17. Physical education teachers should receive training related to orienteering. (f=6)
C18. In-service training should be given to teachers. (f=5)
C19. Students should be given the necessary opportunities to do orienteering. (f=5)
C20. Orienteering should be a separate department in higher education. (f=5)
C21. A separate budget should be set aside for orienteering activities in school. (f=5)
C22. Orienteering should be taught from simple to complex. (f=4)
C23. Educators should be trained with regard to how orienteering should be integrated into the education process. (f=4)
C24. Students should be given training in orienteering. (f=4)
C25. Activities related to map reading and interpretation should be conducted. (f=4)
C26. Activities related to finding targets by using a map should be carried out. (f=3)
C27. Orienteering competitions should be held on special days. (f=3)
C28. Direction finding activities should be conducted. (f=3)
C29. Maps should be drawn of the areas where orienteering is to be done. (f=3)
C30. It should be expanded in schools. (f=3)
C31. Orienteering maps of school gardens should be drawn. (f=3)
C32. Orienteering should be encouraged by the relevant persons and institutions. (f=3)
C33. Activities should be carried out by the Orienteering Federation. (f=3)
C34. Parents should be given training related to orienteering. (f=2)
C35. Orienteering can be integrated into club activities. (f=2)
C36. Activities should be carried out to prepare for orienteering competitions. (f=2)
C37. Orienteering-specific conditioning activities should be conducted. (f=2)
C38. A map should be drawn of the areas where orienteering can be organised for students. (f=2)
C39. Classroom teachers should receive training related to orienteering. (f=2)
C40. Students who are talented in orienteering should be identified. (f=1)
C41. Projects related to orienteering training can be prepared. (f=1)
C42. Orienteering training should be given in public education centres. (f=1)
C43. Orienteering can be integrated into scouting activities. (f=1)
C44. Out-of-school (outdoor) orienteering activities should be done. (f=1)
C45. Studies on the use of a compass should be conducted. (f=1)
C46. Studies on orienteering aimed at trekking should be done. (f=1)
C47. Park orienteering can be organised. (f=1)
C48. Orienteering activities should be increased in schools. (f=1)
C49. Cooperation between local administrations and schools should be enabled. (f=1)
C50. Coaching courses should be expanded. (f=1)
C51. A public announcement about orienteering can be prepared. (f=1)
C52. The Council of Higher Education should encourage orienteering. (f=1)

As can be seen in Table 6, there are many different activities stated by the participants for introducing, teaching, disseminating and supporting orienteering for individuals. These can be classified as promotion, teaching, and activities related to orienteering.

Finally, the participants' metaphorical perceptions about orienteering were discussed. In this context, the metaphorical perceptions of the participants towards orienteering are given in Table 7.

Table 7. Metaphorical perceptions related to orienteering

Main Theme: Metaphorical perceptions related to orienteering	
Subthemes (S) / Codes (C) / (frequency)	
S1. Orienteering is an interdisciplinary sport: C2, C4, C5, C6, C9, C10, C13, C14, C16, C17, C18, C20, C21, C22, C23, C24, C25, C26, C27, C28, C30, C32, C34, C35, C38, C41, C42, C43, C44 (f=29)	
S2. Orienteering develops life skills: C1, C3, C7, C8, C11, C12, C15, C19, C29, C31, C33, C36, C37, C39, C40 (f=15)	
Code (C) / (frequency), metaphor (M) / (participant code)	
Code (C) / (frequency), metaphor (M) / (participant code)	C20: It is very comprehensive. (f=1)
C1: It fosters essential skills for life. (f=10)	M20: Conscious exercise (P57)
M1: Life (P14, P21, P29, P53, P75, P22, P36), breathing (P34), engineering (P49), guide and manual (P72)	C21: It is chess in nature. (f=1)
C2: It is an outdoor sport. (f=6)	M21: Chess (P27)
M2: Living with nature (P30), freedom (P33), direction finding and survival (P55), playing chess in nature (P56, P61), being at one with nature (P76)	C22: It involves the harmony of nature and the mind. (f=1)
C3: It is a mind game. (f=4)	M22: Playing chess in nature (P48)
M3: Chess (P13, P59, P60), brain (P73)	C23: It involves a struggle in nature. (f=1)
C4: It is a sport. (f=4)	M23: Survivor (P74)
M4: Chess and athletics (P1), solving puzzles while running (P6), racehorse (P8), playing chess while running (P20)	C24: It allows us to rest in nature. (f=1)
C5: It involves finding targets. (f=3)	M24: Forest painting in a dark room (P52)
M5: North pointer of the compass (P58), treasure hunting (P31), puzzle (P32)	C25: It is a struggle for life in nature. (f=1)
C6: It gives the feeling of freedom. (f=3)	M25: Struggle to survive (P46)
M6: Bird (P12, P18, P77)	C26: It is a mind game in nature. (f=1)
C7: It is a problem-solving process. (f=3)	M26: Playing mind games in nature (P78)
M7: Summary of life (P25), puzzle (P26), finding a solution as quickly as possible (P71)	C27: It involves playing by thinking. (f=1)
C8: It involves alternative solutions. (f=2)	M27: Chess (P43)
M8: Bicycle (P19), coding (P63)	C28: It involves playing by thinking. (f=1)
C9: It is a race. (f=2)	M28: Catching fish (P81)
M9: Pentathlon (P10, P11)	C29: It is enjoyable. (f=1)
C10: It is important to use the shortest time and the appropriate route. (f=2)	M29: Treasure map (P9)
M10: Messenger (P19), navigation (P39)	C30: It requires physical and mental energy and sustaining these. (f=1)
C11: It requires strength in every way. (f=2)	M30: Playing chess by running (P45)
M11: Terminator (P24), sport (P28)	C31: It is a sport that provides everyone with the skills they need. (f=1)
C12: It enables reflective thinking. (f=2)	M31: Feeding the baby (P38)
M12: Sudoku (P15), life (P41)	C32: It involves finding targets quickly. (f=1)
C13: But other things resemble orienteering. (f=1)	M32: Race against time (P50)
M13: Something unique (P16)	C33: It involves decision-making skills. (f=1)
C14: It is a sport in which the trainer does not interfere in the field. (f=1)	M33: Using intelligence (P66)
M14: The athlete's freedom (P64)	C34: It involves running. (f=1)
C15: It improves the brain. (f=1)	M34: Athletics (P4)
M15: Chess (P40)	C35: It provides an adventure-filled experience. (f=1)
C16: Unknowns are found from things that are known. (f=1)	M35: Adventure (P5)
M16: Logic lesson (P42)	C36: It fosters self-confidence. (f=1)
C17: It includes the features of many sports branches. (f=1)	M36: Puzzle (P2)
M17: Latest model car with most advanced technology (P70)	C37: It enables self-management. (f=1)
C18: It opens the door of nature to the individual. (f=1)	M37: Mathematics (P35)
M18: Maze game (P62)	C38: It is calming. (f=1)
C19: It enables holistic development. (f=1)	M38: Diving from hot land into cool water (P54)
M19: Playing chess in nature (P44)	C39: It enables thinking from the concrete to the abstract. (f=1)
	M39: User guide (P65)
	C40: It enables strategic thinking. (f=1)
	M40: Computer game (P3)
	C41: It involves stress. (f=1)
	M41: Maze game (P7)
	C42: It strengthens the mind and body. (f=1)
	M42: Antivirus (P47)
	C43: It is important to stay fit. (f=1)
	M43: Military service (P69)
	C44: It is difficult and fun. (f=1)
	M44: Sudoku (P23)

Note: There were cases where participants gave more than one explanation of a metaphor. Codings were made accordingly.

When Table 7 is examined, it can be understood that the metaphorical perceptions of the participants are similar to the views in the previous findings. The participants appeared to have interpreted orienteering as a very beneficial and comprehensive sport in an interdisciplinary structure. In other words, it can be suggested that from the perspective of the participants, orienteering is perceived as an interdisciplinary sport that develops life skills.

Following the findings regarding the participants' evaluation of orienteering from different perspectives, the orienteering notes that stood out in the researcher's field notes are given in Table 8.

Table 8. Orienteering notes appearing in field notes

Field Note 1: TOF Stage Races
Location: Trabzon, Samsun
Date: 6-7 May 2017, 14-15 October 2017
Researcher's participation status: Athlete
Note: From among the field notes taken for both races, the common notes that stand out in line with the purpose of the research are included.
Orienteering can involves emotional and thinking processes simultaneously.
Orienteering can involves problem solving and quick decision making processes.
Orienteering can supports all developmental areas of individuals of all ages.
Orienteering has a constructivist process.
Orienteering has the potential for an individual to acquire many of the skills he needs.
Orienteering can have a very important role, especially in the holistic development of children.
Field Note 2: TOF Mapping Course (1st grade)
Location: Antalya
Date: 20-29 January 2018 (1st grade)
Researcher's participation status: Trainee
Within the scope of orienteering, students can gain different skills related to many courses and achievements through map drawing.
An educator who wants to use orienteering must have map drawing skills and knowledge.
Field Note 3: TOF Orienteering Coach Training Courses (1st and 2nd grades)
Location: Çanakkale (1st grade), Trabzon (2nd grade)
Date: 3-14 July 2017 (1st grade), 24 June-9 July 2019 (2nd grade)
Researcher's participation status: Trainee
Note: From among the field notes taken for both courses, the common notes that stand out in line with the purpose of the research are included.
An educator who wants to use orienteering can receive theoretical training on orienteering.
An educator who wants to use orienteering can do orienteering in the field.
An educator who wants to use orienteering should experience different educational practices designed by an expert in the field.
An educator who wants to use orienteering should design and implement educational experiences related to orienteering.
An educator who wants to use orienteering can be able to adapt educational goals to orienteering.
An educator who wants to use orienteering can plan very well.
Field Note 4: Researcher's observations of activities she participated in
Date: Between 2017-2021
Activity types: Contest, activity, project, etc.
Researcher's participation status: Referee, instructor, trainer, official.
Note: From among the field notes taken for all the observed activities, the common notes that stand out in line with the purpose of the research are included.
Orienteering can be used for multiple purposes in education.
It can also be used in the orienteering measurement and evaluation process.
Orienteering can be used in the versatile development of individuals.
The use of orienteering for educational purposes requires highly qualified training.

Table 8 demonstrates that, from the point of specifying goals and tools in the education process, there is a great deal of knowledge and many skills for which orienteering can be used and which can improve students with a multi-faceted approach. From this standpoint, all the results seem to support each other. It can, thus, be interpreted that orienteering can be used effectively as a goal and a versatile tool in

education. In addition, the results of this study did not differ much by gender and branches of the participants.

Discussion and Conclusion

This study aimed to examine the views of teachers about the use of orienteering in education. First of all, the views held by the participants about orienteering were examined. When we look at the participants' definitions for orienteering, the prominent features can be expressed as being intertwined with nature, being fun and entertaining, requiring physical (speed, fitness, running, movement agility, etc.), mental (intelligence, problem solving, reasoning, strategic thinking, etc.) and psychological strength, contributing to psychological wellbeing (enabling peace of mind, self-confidence, etc.), being suitable for all ages, requiring basic orienteering skills (reading a map, using a compass, direction finding, getting directions, etc.), having similarities with many different games (puzzles, chess, treasure hunting, etc.), being nature-friendly, and being educational and instructive. Furthermore, it can be stated that the participants' views on the benefits provided by orienteering for individuals appear to be a more detailed form of the definitions they gave. In this context, it could be suggested that orienteering develops many skills such as physical, mental, decision-making, reasoning, problem-solving, thinking, social, direction-finding, map-reading, spatial thinking, attention and focus, lateral thinking, ethical, memory, competitive, critical thinking, communication, crisis management, creative thinking, three-dimensional thinking, visual reading, empathising, and measurement skills, as well as promoting active and healthy living, psychological wellbeing, self-awareness, self-control, and use of technology, as well many other benefits (happiness, courage, self-confidence, achievement, etc.) from different aspects. Such results regarding the contributions of orienteering to individuals are supported by Kelly (2014), and McNeil and Palmer (2005), and are compatible with the literature. In this context, it can be stated that orienteering has a structure that improves the individual's personal, social and academic skills. It can be stated that these results are also reflected in the notes taken by the researcher. In this context, it is stated in the field notes that orienteering can be used in the context of means and purposes in education. However, it should be noted that for this, teachers need to receive training, improve themselves on maps and make good planning. It should be emphasized here that the planning process of orienteering is very important.

The participants' metaphorical perceptions about orienteering seemed to be similar to their other views. Their perceptions of orienteering were positive, with multi-dimensional and beneficial characteristics. Apart from being an outdoor sport, orienteering also has a powerful interdisciplinary potential. Considering the skills developed by orienteering (Kelly, 2014; McNeill & Palmer, 2005) and the benefits it provides, it can be stated that they show parallelism with the goals determined according to contemporary education approaches. With reference to the 21st century skills, such characteristics as learning and innovation (problem solving, communication, creativity, etc.), digital literacy (information and communication technologies), and career and life skills (leadership, responsibility, self-management, etc.) come to mind (Trilling & Fadel, 2009). Indeed, based on the results, it can be concluded that many skills that are believed to develop through orienteering actually fall within the scope of the 21st skills. As for the reason for this, it can be considered that the orienteering process is in fact an experiential learning process. It is also regarded as a process in experiential learning, and that this process involves experience, requires adaptation to the world, comprises individual and external processes, and is a knowledge production process (Kolb, 2015). In fact, individuals learn through their experiences (Dewey, 2013). Since orienteering can successfully combine physical and cognitive energy in the background of positive emotions (Vaskan, et al., 2019), it can be viewed as a life skill. Kaya (2020) also stated that this energy is associated with many learning areas and can be used in such areas. Furthermore, Beyaztaş (2022) stated that academic achievement increased, in a study focusing on orienteering within the framework of Quantum Learning Approach. From an educational point of view, the link between orienteering and experiential learning can to some extent explain the source of orienteering's benefits for an individual. Therefore, it can be stated that an individual who performs only orienteering may acquire many skills aimed at in the education system. As a result, orienteering can be defined as an educational goal that includes a skill reserve beyond being merely an outdoor sport.

Orienteering can be regarded as a goal in and of itself in education. However, orienteering can also be used as a tool in education. Bradford (1977) stated that educators can combine orienteering with their

academic programmes. In this way, students can explore many new areas (Kelly, 2014). In her study, Uzuner (2019) used orienteering as a tool to develop mathematical problem-solving skills and stated that orienteering can be used in this way in different fields. Uzuner and Şahin (2021) concluded in their study that orienteering is effective in developing attention, metacognition and problem-solving skills of students with ADHD. Similarly, Taş (2010) stated that from a sportive point of view, people who do orienteering cope better with stress, Sağlamol, Tüzkan and Acar (2015) focused on democracy teaching through orienteering from an educational point of view. According to Atakurt et al. (2017) and Vaskan et al. (2019), orienteering has positive effects on cognitive activities from a sportive point of view, while Harput, Çağlayan and Bilici (2015) tried to make students get to know the Ancient City of Ephesus by using orienteering, from an educational point of view. The participants stated that orienteering, which supports the holistic development of individuals with its multiple benefits, can be used as a tool in education by being handled in a game format. Orienteering can also be used as a tool for achieving educational goals, for reasons such as facilitating learning, contributing to daily life, having a structure that can be used in teaching the subjects in many courses, being useful in many areas inside and outside the classroom, enabling learning by having fun, and being a source of motivation. Orienteering can, therefore, be used as a tool to foster and make good use of the desired knowledge, skills, values and behaviours in students within the scope of educational goals. In other words, as well as being an outdoor sport, orienteering can be used as a teaching method and technique. Furthermore, it can be used within the scope of alternative measurement and evaluation methods and techniques. Orienteering can also be deemed as a motivation tool in and of itself. When orienteering is dealt with in this way, individuals may achieve both the outcomes of orienteering and the targeted educational goal. Thus, the use of orienteering as a tool in education means that individuals are likely to go through an intense experiential learning process. However, one aspect should be noted here: The reason why orienteering is used as a tool in education is that it is very efficacious as a sport. In other words, an individual who only does orienteering can achieve many gains (Kelly, 2014). If a goal is to be achieved in the context of the lesson, it also effectively mediates to achieve it. For this reason, it can be stated that orienteering can be used in many areas as a tool, a goal, and both a tool and a tool.

Orienteering should also be introduced and taught to the stakeholders of education (teacher, student, parent, administrator, etc.) in order to make use of it effectively in education in terms of a goal and tool. Some suggestions were made by the participants in this regard. Accordingly, orienteering should be introduced and taught to the relevant stakeholders; cooperation should be made between schools and related institutions and organisations; orienteering should be included in the curricula of all education levels; the number of orienteering-related (local, national and international) competitions should be increased; the necessary support (materials, training, activities, etc.) should be given to schools so as to enable all schools to do orienteering; in-class and out-of-class orienteering activities should be carried out, and map and compass-using activities should be conducted to help students acquire orienteering skills. According to Notarnicola et al. (2012), Vukadinovic et al. (2015) and Tanrıkulu (2011), orienteering should be used in schools. The source of this suggestion can be shown as the physical and mental aspects of orienteering (Gölgeli, 2020) and its interdisciplinary potential (Tammaro et al., 2017). In particular, orienteering training should start from the basic education level and within this scope, orienteering should be introduced and taught to students with map and compass games. As a result, teachers must first possess the necessary knowledge and skills in the field of orienteering so that it can be benefited effectively in education in terms of a goal and tool. In fact, orienteering can be used effectively in the education process of all students in order to encourage the desired behaviours. The relevant literature review has shown the presence of similar studies (Paliichuk et al., 2018; Pouya et al., 2017; Atakurt et al., 2017; Vaskan et al., 2019).

As a consequence, it can be assumed that the use of orienteering in education as both a goal and a tool may be critically important in raising future generations in a better quality way in the globalising world. It is also necessary that the skills that orienteering brings to individuals (Kelly, 2014) be by and large consistent with the 21st century skills (Partnership for 21st Century Skills, 2019). In addition, the spread of a sports branch of Swedish origin to the world and afterwards, its transformation into a potential tool that can be used in the field of education all over the world can be considered as an important output in terms of intercultural innovation and transformation in education. As a matter of fact, as a result of the developments in many areas in the world, communication and interaction occur

at the international level. Making this interaction favourable for societies is dependent on state policies and educational sciences. In this case, educators have to deal with intercultural education, which is a contemporary form of education (Coşkun, 2016). In this context, the existence of intercultural interaction in education can contribute to the enrichment of the content of global education.

As for the research field, it may be useful to develop suggestions for new studies based on the limitations of this study so that the results obtained can contribute more to the relevant literature. In this respect, it can be recommended that studies on this subject be conducted in which the number and variety of participants is greater, the data collection tools are more varied, the data collection period is longer, and different research methods are used. Furthermore, it can be suggested that more practical studies are conducted on the use of orienteering as a goal and tool in education. In addition, it can be recommended that projects be carried out within the scope of orienteering and education in the intercultural dimension related to the field of education. Orienteering should be included in curriculum as a content and teaching method. More emphasis should be given to orienteering training by Council of Higher Education and the Ministry of National Education.

References

Arnsdorf, E. (1978). New ideas for outdoor mathematics. *Arithmetic Teacher, 25*(7), 14-7.

Atakurt, E., Şahan A., & Erman, K. A. (2017). The effect of orienteering education on attention and memory. *SPORMETRE The Journal of Physical Education and Sport Sciences. 15*(4), 127-134.

Balkwill, T. L. (1996). *Determinants of teacher participation in outdoor education: A survey of Kent County teachers* (Master's thesis). University of Windsor. Canada.

Bektaş, F., Karademir, E., Kaya, S., Kalın, C., Şeker, T., Kurtoğlu, E., Öztürk, F., Arslan, E., Aydın, Ö., Ataklı, G., & Oymak, Ö. (2019). *Oryantiring eğitimi* [Orienteering training] S. Akbıyık (Ed.). Ankara: Millî Eğitim Bakanlığı Genel Yayın [Ministry of National Education General Publication].

Beyaztaş, M. K. (2022). *The use of orienteering game supported by quantum learning approach in teaching the natural systems unit of the 11th grade geography lesson,* (Unpublished master's thesis). Atatürk University, Institute of Educational Sciences, Erzurum, Turkey.

Boga, S. (1997). *Orienteering.* United States of America: Stackpole books.

Bomgardner, R. (2014). *The relationship between education, self-efficacy, and aggregate physical fitness in children* (Doctoral dissertation). Liberty University. USA.

Bradford, D. (1977). Incorporating orienteering in school programs. Retrieved June 21. 2020 from https://files.eric.ed.gov/fulltext/ED134384.pdf. (ED134384)

British Orienteering. (2021). What is Orienteering? Accessed from https://www.britishorienteering.org.uk/page/newcomers_guide dated 02.08.2021.

Cataldi, S., Bonavolontà, V., & Fischetti, F. (2021). Starting a sport as outdoor education in infancy: orienteering, visual spatial memory for empowering school learning. *Journal of Physical Education and Sport*, 21, 696-701.

Champion, N. (2010). *Orienteering*. New York: The Rosen Publishing Group Inc.

Childs, S. A. (1986). *A comparison of indoor versus outdoor teaching interventions upon the academic skill acquisition and interaction behaviors of selected students with learning disabilities* (Doctoral dissertation). The Ohio State University. USA.

Coşkun, H. (2016). Kültürlerarası eğitim: Türkiye ve Almanya örneği [Intercultural education: the case of Turkey and Germany]. Ankara: Konrad-Adenauer-Stiftung.

Coşkun, R., Altunışık R., & Yıldırım, E. (2017). *Sosyal bilimlerde araştırma yöntemleri SPSS uygulamalı* [SPSS applied research methods in social sciences]. Sakarya: Sakarya Yayıncılık.

Côté, N. & Kirk, C. (2005). Orienteering. In F. Fortin (Ed.), *Sports: the complete visual reference* (pp. 162). Canada: QA International.

Creswell, J. W. (2013). *Qualitative inquiry & research design: Choosing among five approaches* (3rd ed.). Sage Publications.

Deniz, E., Yoncalık, O., Aslan, S., & Sofi, N. (2012). The impact of orienteering sport taught through creative drama methods on five factor personality dimensions. *Procedia-Social and Behavioral Sciences, 46*(2012), 4864-4868.

Denzin, N. K. (1978). Triangulation: A case for methodological evaluation and combination. In N. K. Denzin (Ed.), *Sociological methods: A sourcebook*. Routledge (pp. 339-342). McGraw Hill.

Dewey, J. (2013). *Deneyim ve eğitim* [Experience and education], (Transl. S. Akıllı). Ankara: ODTÜ Publisher.

Disley, J. (1979). *Orienteering*. United States of America: Stackpool Books.

Eaton, D. (2000). *Cognitive and affective learning in outdoor education* (Doctoral dissertation). University of Toronto. Canada.

Erten, P. (2019). Preservice teachers' perceptions of 21st century skills competence and their vıews on gaining these skills. *Milli Eğitim Journal*, *49*(227), 33–64.

Ferguson, C. & Turbyfill R. (2013). *Discovering orienteering: Skills. techniques. and activities*. United States of America. USA: Human Kinetics.

Gliner, J. A., Morgan, G. A., & Leech, N. L. (2017). *Research methods in applied settings: An integrated approach to design and analysis.* Routledge.

Gölgeli, T. (2020). *A case study on the effect of route characteristics on decision making in the sport of orienteering*, (Unpublished master's thesis). Middle East Technical University, The Graduate School of Informatics, Ankara, Turkey.

Golden, B. L., Levy L., & Vohra R. (1987). The orienteering problem. *Naval Research Logistics, 34*(3). 307-318.

Hammes, R. (2007). Orienteering with adventure education: New games for the 21st century. *Strategies, 20*(5). 7-13.

Harput, B., Çağlayan, Y., & Bilici, A. (2015, April). A crafting workshop adventure: Ancient ephesus mysterious puzzle. Conference on Good Practices in Education. Sabancı University, İstanbul.

Kaya, S. (2020). *Investigation of the application process of orienteering activities used in education by trainers and branch teachers within different courses*, (Unpublished master's thesis). Trabzon University, Institute of Graduate Education, Trabzon, Turkey.

Kelly, N. (2014). *Orienteering made simple and GPS technology: An instructional handbook*. USA: Author House.

Kolb, D. (2015). *Experiential learning: Experience as the source of learning and development*. New Jersey: Pearson Education, Inc.

Larkin, R. P. & Grogger P. K. (1975). Map and compass skills for the elementary school. Instructional Activities Series IA/E-9. (ED138529)

McNeill, C. & Palmer P. (2005). *Orienteering: key stages 3 & 4 in the national curriculum*. Harveys: United Kingdom.

Merriam, S. B. (2009). *Qualitative research: A guide to design and implementation*. John Wiley & Sons.

Miles, M. B., & Huberman, A. M. (1994). *Qualitative data analysis: An expanded sourcebook.* Sage Publications.

Notarnicola, A., Vicenti, G., Tafuri, S., Fischetti, F., Laricchia, L., Guastamacchia, R., & Moretti, B. (2012). Improved mental representation of space in beginner orienteers. *Perceptual and motor skills, 114*(1), 250-260.

Paliichuk, Y., Dotsyuk, L., Kyseltsia, O., Moseychuk, Y., Martyniv, O., Yarmak, O., & Galan, Y. (2018). The influence of means of orienteering on the psychophysiological state of girls aged 15-16-years. *Journal of Human Sport and Exercise, 13*(2). 443-454.

Partnership for 21st Century Skills. (2019). *Framework for 21st Century Learning*. http://www.battelleforkids.org/networks/p21/frameworks-resources. (Date accessed: 13.03.2022)

Patton, M. Q. (2002). *Qualitative evaluation & research methods* (3rd ed.). SAGE Publications Inc.

Pouya, S., Demir S., & Demirel, Ö. (2017). Orienteering plays for disabled children. *Kastamonu University Journal of Forestry Faculty, 17*(4), 608-618.

Robson, C. (2011). *Real world research*. John Wiley & Sons Limited.

Saban A. (2004). Giriş düzeyindeki sınıf öğretmeni adaylarının "öğretmen" kavramına ilişkin ileri sürdükleri metaforlar [Metaphors proposed by entrance-level classroom teacher candidates regarding the concept of "teacher"]. *The Journal of Turkish Educational Sciences, 2*(2), 131-155.

Sağlamol, G., Tüzkan, A. C., & Acar, Ö. (2015, April). Demoryantiring interdisciplinary study (mathematics-science-social studies courses). *Conference on Good Practices in Education.* Sabancı University, İstanbul.

Salant, P. & Dillman, D. A. (1994). *How to conduct your own survey*. New York: Wiley.

Sension-Hall, D. (2011) Compass games. *Recreation & Dance, 82*(1), 16-22.

Slentz, T. C. & Chase M. A. (2003). Climbing mount Everest: a new challenge for physical education adventure education. Journal of Physical Education. *Recreation & Dance, 74*(4), 41-43.

Stones, E. (1994). *Quality teaching: A sample of cases*. London: Routledge.

Tammaro, R., D'Alessio, A., & Petolicchio, A. (2017). Orienteering: motivation, multidisciplinary, and skills. A project in a secondary school in the province of Salerno. *International Journal of Humanities and Social Sciences, 9*(5), 34-40.

Tanrıkulu, M. (2011). A dıfferent usıng area of map and compass orıenteerıng. *Milli Eğitim Journal*, 191, 120-121.

Taş, M. Y. (2010). Stress coping skills of orienteering athletes and non-athletes (Unpublished master's thesis). Gazi University, Health Sciences Institute, Ankara.

Trilling, B. & Fadel C. (2009). 21st century skills: Learning for life in our times. John Wiley & Sons.

Uzuner, F. G. & Şahin, M. (2021). Examining the effect of orienteering on the development of attention, metacognitive awareness and problem-solving skills of primary school students with ADHD. *Journal of Educational Leadership and Policy Studies*, (spec iss).

Uzuner, F. G. (2019). An investigation of the effects of orienteering on the development of primary school students' math problem-solving skills (Doctoral Dissertation). Trabzon University, Trabzon, Turkey.

Vaskan I., Koshura A., Kurnyshev Y., Moseychuk Y., Tsybanyuk O., Yarmak O., & Galan Y. (2019). Orienteering in the system of recreational and health-improving activity of student youth. *Journal of Physical Education and Sport, 19*(Supplement issue 2). 489-494.

Vukadinović, N., Juhas, I., & Kozoderović, J. (2015). Orienteering section as a form of extracurricular activities in physical education. *Fizička Kultura, 69*(1), 59-69.