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RESEARCH ARTICLE

Determination of High School Students' Awareness of Geographical Elements with Fieldwork: A Qualitative Research

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ABSTRACT

In this study, it was aimed to determine the awareness levels of the students who took the compulsory geography course in the 9th and 10th grades of high school about the geographical elements they learned in geography courses through a fieldwork. The research was shaped according to the phenomenological design, one of the qualitative research methods. For the research, a geographical fieldwork was conducted and data were collected through interviews after the study. The study was conducted with 40 10th grade students in a high school in Kayseri during the 2021-2022 academic year. Participants were identified on a voluntary basis. Criterion sample selection strategies were utilized to identify the participants. The criterion for the selection of the students participating in the fieldwork was to have taken the compulsory geography course in the 9th and 10th grades. On June 16, 2022, the answers given by the participants to the open-ended question form applied after the fieldwork were analyzed by descriptive analysis method. While performing descriptive analysis, categories were formed from the findings and percentage distributions were given in tables. In the tables created, direct quotations were made from the views of the participants. In the excerpts, participants were identified by code names such as P.1, P.2. In the formula applied to test the analysis performed by the researchers and the analysis performed by the other expert, 87% agreement was observed. According to the findings obtained in the study, it was concluded that high school students were able to recognize the geographical elements they saw in the 9th and 10th grades during fieldwork. According to the results obtained, it is recommended that fieldworks should be carried out in order to reinforce the subjects learned within the scope of geography lessons at high school level.

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1. Introduction

In Türkiye, geography lessons are included in the 9th, 10th, 11th and 12th grade programs. While 9th and 10th grade geography lessons are compulsory in all types of high schools, 11th and 12th grade geography lessons can be taken as elective courses. The teaching of the geography lesson is carried out according to the Geography Lesson Teaching Program (GLTP), which entered into force in 2018. There are 7 items under the title of issues to be considered while implementing the program and the 6th item is as follows; the teacher should attach importance to practice trips. Fieldworks, which are indispensable for the geography lesson, are very important both for the development of fieldwork skills and for seeing many geographical events on site and perceiving the subjects better (MEB, 2018). The skill of field work, or the skill of working in the field as it is called in the curriculum, is a versatile skill that

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enables a student taking this course within the scope of high school geography subjects; to travel in the field, to make observations, to make sense of what they see, to use map skills, to list the geographical elements they see, to draw shapes, to notice their surroundings, to collect data, to transform the data they collect into a report and to present it (Coşkun, 2020). According to the GLTP, the achievements covering the development of the skill of working in the field are given in Table 1.

Table 1. Distribution of fieldwork skills in GLTP according to grade level, course hours and units (MEB, 2018).

Class Level	Units			
	Natural Systems	**Human Systems**	**Global ambient: Regions and Countries**	**Environment and Society**
Grade 9	-	1	-	2
Grade 10	4	1	-	1
Grade 11 (4 hours)	1	1	-	1
Grade 11 (2 hours)	-	1	-	-
Grade 12 (4 hours)	-	2	-	-
Grade 12 (2 hours)	-	2	-	-

When the information in Table 1 is examined, it is seen that 3 objectives in the 9th grade, 6 objectives in the 10th grade, 3 objectives in the 11th grade 4-hour program, 1 objective in the 2-hour program, and 2 objectives in both the 2-hour program and the 4-hour program in the 12th grade aim to develop the skill of working in the field. While the total number of learning outcomes in the GLTP is 130, 10.77% of them are aimed at developing the skill of working in the field. In order for students to develop the skill of working in the field, it is very important to carry out fieldworks in line with the relevant acquisitions at high school level. Fieldwork, which is an integral part of geography learning, is effective in developing knowledge and skills that are difficult to learn in the classroom and has always been an important teaching and learning method for school geography (Esteves et al., 2018). It is recognized worldwide that fieldwork plays a fundamental role in the discipline of geography. Many geographers even go so far as to identify other geographers by their ability to conduct fieldwork (Phillips & Johns, 2012). In fact, it has been recognized that fieldwork adds value to the teaching and learning process in geography at different levels. Perhaps this is due to the fact that fieldwork involves experiential learning through "seeing" and "doing" (Fuller et al., 2000).

It is thought that the learning and teaching process through land studies is important for geography teaching in higher education institutions (Nairn, 2005; Fuller et al., 2006; Hope, 2009; Fuller, 2011; Yılmaz & Bilgi, 2011; Leydon & Turner, 2013; Aytaç, 2014; Türker et al., 2020). In order for high school students to develop the skills of working in the field, these skills must first be acquired by geography teachers during undergraduate education. Geography teachers who have not had successful experiences on the organization of fieldwork and how to conduct efficient fieldwork will be inadequate in providing their students with the skills to work in the field (Türker et al., 2020). Fieldwork for school geography supports classroom learning and provides one-to-one embodied experiences with the physical environment (Lee & Ingold, 2006). Fieldwork can be carried out in various ways and plays a role in achieving the objectives of the curriculum. The aims and learning outcomes of fieldwork are also varied. These include learning geographical skills, recognizing geographical elements in the real world, and analyzing interrelationships (such as the interactions between human and physical geography) (Hall et al., 2002). Westheimer et al. (1992) consider fieldwork important in terms of realizing the objectives of the curriculum and enabling students to actively learn theoretical knowledge. According to them, a fieldwork in the process of teaching physical geography requires students to use multiple senses and to apply various disciplines to explore the world around them. Golubchikov (2015) defines field trips covering human geography topics as "feeling trips" that help to express the triadic relationship between experience, emotion and critical thinking that underpins students' understanding of the connections between spatial processes and social processes. However, fieldwork, which is so important in the process of teaching geography subjects, may be considered unimportant by some people. This is because fieldwork is both expensive and, when done on school days, can deprive students of other school lessons. The common characteristic of those who consider fieldwork unimportant is their belief that geography can be taught without going out into the field (Lambert & Reiss, 2016). However, it is a fact that geography is a field discipline and geography without fieldwork becomes a science without experimentation (Larsen et al., 2021). In this context, a well-planned fieldwork can provide students with an enjoyable and inspiring process through school experiences, opportunities to

be practical, develop group work and leadership skills, and improve their disposition towards learning by increasing their sense of independence, self-confidence, risk-taking and ability to cope with uncertainty (Kinder, 2018). Clarke (1996) divides the skills that students can acquire through fieldwork into three. These are subject-specific skills, transferable skills and social skills. According to Rydant et al. (2010), fieldwork skills involve a wide range of organizational, interpersonal and intellectual activities and contribute to the development of transferable skills such as time management and presentation skills, observation, teamwork, communication, individual learning and computer literacy, and independent and small group interaction. In addition, some studies have shown (McGuiness & Simm, 2005; Drummer et al., 2008) that fieldwork has the ability to encourage students to think critically by questioning themselves. In fact, according to Krakowka (2012), fieldwork should be at the center of the geography curriculum. This makes sense for both physical and human geographers. Fieldwork are one of the most effective methods of enabling students to experience and, at best, understand geographical concepts.

When the literature is examined, it is seen that there are many studies on geographical fieldworks. An important part of these are studies conducted with geography teaching undergraduate students (Kent et al., 1997; Pawson & Teather, 2002; Fuller et al., 2006; Dunphy & Spellman, 2009; Hupy, 2011; Krakowka, 2012; Leydon & Turner, 2013; Türker et al., 2020; Himmetoğlu & Türker, 2022). Because fieldwork is accepted as an important method in undergraduate geography education. Geographers also recognize fieldwork as one of the most effective and enjoyable forms of teaching and learning for both themselves and students (Kent et al., 1997). Dunphy and Spellman (2009) in relation to the teaching of school geography subjects, both teachers and students generally have positive attitudes and perceptions for geographical fieldwork. In Lai (1999)'s research, it is seen that a teacher's purpose of doing fieldwork is usually to provide permanent learning in a subject. Research by Munday (2008) revealed that geography teachers in Australia do fieldwork several times a year and that teachers help each other while doing fieldwork. In a study conducted by Hupy (2011), it was concluded that geography fieldwork helps to support affective and cognitive outcomes such as appreciation within student groups, building friendships, encouraging cooperation and collaboration, and facilitating higher level learning. Krakowka (2012) stated that the process of learning in the field increases cognitive benefits such as internalized knowledge, meaningful and permanent learning, and acquisition of new geographical knowledge. In his study, Tinsley (1996) states that research projects carried out in the geographical field encourage individual motivation and responsibility and increase self-confidence. In this study, it was aimed to determine the awareness levels of the students who had taken the compulsory geography course in the 9th and 10th grades of high school with a fieldwork. For this purpose, a field trip was organized to Gökoluk Highland and its surroundings within the borders of Yahyalı district of Kayseri province (Figure 1).

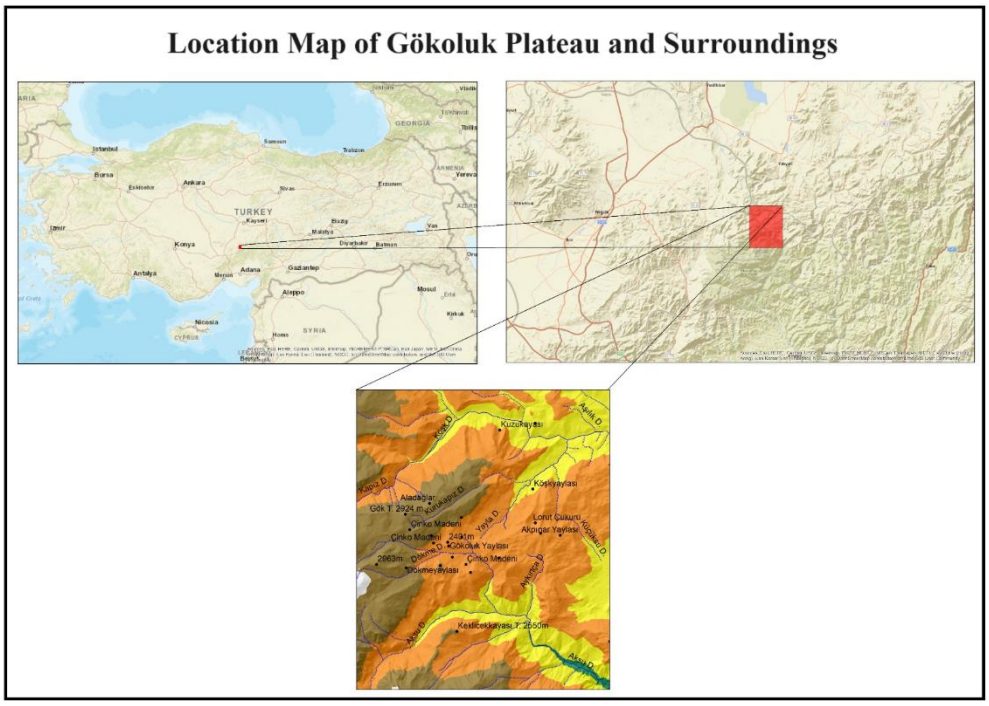

Figure 1. Location map of the site visited for fieldwork.

2. Materials and Methods

2.1. Research Design

Qualitative research methods were utilized in the study. Qualitative research is primarily concerned with the way people interpret their lives, the meaning they attach to their experiences and how they shape their world. In qualitative research, words and expressions rather than numerical values are used to express views and opinions. In qualitative research, direct quotations from documents, field notes and interviews are included by the researcher to support the findings obtained (Merriam, 2018). In this context, direct quotations of the participants' views were included in the study. It was deemed appropriate to use phenomenological research design in the study. Phenomenological research is a design in which the researcher describes the experiences of individuals related to a phenomenon as defined by the participants (Creswell, 2017). In this design, data are collected through interviews to obtain the basic structure or truth underlying the meaning of the experience (Merriam, 2018). Phenomenological design involves the investigation of phenomena such as events, experiences, perceptions, orientations, concepts and situations encountered in daily life (Yıldırım & Şimşek, 2021).

2.2. Study Group

The study was conducted with 40 10th grade students in a high school in Kayseri at the end of the 2021-2022 academic year. Participants were identified on a voluntary basis. Criterion sample selection strategies were utilized to identify the participants. The criterion for the selection of the students participating in the fieldwork was that they had taken the compulsory geography course in the 9th and 10th grades. In addition, code names were used in the reporting of the research findings in order to keep the identities of the participants confidential. The necessary permissions were obtained from the students in the study group, parents and relevant institutions. Fieldwork was carried out on a day when education was not planned so that the students in the study group would not be deprived of other courses (Figure 2).

Figure 2. Working group participating in the fieldwork.

2.3. Collection of Data

The research data were obtained with an open-ended questionnaire consisting of 9 questions developed by the researchers and finalized by taking the opinions of two field and two educational science experts. In determining the geography field experts consulted, care was taken to ensure that they had previous fieldwork experience. In determining the educational science experts, having experience in phenomenological design was determined as a condition. The research questions were determined by taking into account the literature review and the issues emphasized in previous studies. The questionnaire, which was finalized with the opinions of field and educational science experts, was presented to a faculty member working in the field of Turkish for his opinion to be examined in terms of language and expression. In this way, it was tried to ensure consistency between the objectives of the research and the questions in the questionnaire developed to collect data. A pilot study was conducted by applying the prepared questionnaire to a student who participated in the fieldwork before the research. As a result of the pilot study, one question was removed and two questions were revised. The data were collected by the first author as the conditions were more favorable.

Before the study, the 1st and 2nd authors informed the students who would participate in the fieldwork about the study in the classroom environment, and the 3rd and 4th authors participated in the meeting online. In this meeting, the participants were explained about the purpose of the research. They were also informed that interviews would be conducted to collect data after the fieldwork and that the interviews would be recorded if they gave permission. The interviews were conducted in the school environment during the hours when the lesson plan was not made after the activity. Before the 45-minute interviews, all students who participated in the fieldwork declared their voluntary participation in the data collection process and gave permission for the recording process.

2.4. Analysis of Data

In order to ensure the internal validity (credibility), external validity (transferability), internal reliability (consistency) and external reliability (confirmability) of the research, the road maps recommended in the studies conducted were utilized (Yıldırım & Şimşek, 2021). First, in-depth interviewing and then participant confirmation were used to express the internal validity of the research. Interviews were kept as long as conditions permitted, and an environment where the participant could express herself comfortably was established to collect in-depth data. After the interview, the answers obtained were read to the participants one by one and the answers were confirmed. They were also told that they could make additions if there were any missing answers. In order to ensure the external validity of the research, the detailed description strategy was utilized. In the methodology section of the research, all the steps followed

were described in detail. The consistency review method was utilized to ensure internal reliability. At this stage, an expert who was not in the research group was informed about the entire research and was asked to examine the publication as a whole in terms of consistency. As a result of the expert review, it was concluded that the research as a whole had a coherent structure. In order to ensure the external reliability of the research, the confirmation review method was used. At this stage, the raw data obtained from the research and the meaning units produced over these data in accordance with the phenomenological research design were shared with the expert conducting the consistency review, and the opinions of the relevant expert regarding the meaning units produced were also taken. On June 16, 2022, the answers given by the participants to the open-ended question form applied after the fieldwork were analyzed using the descriptive analysis method. During the descriptive analysis process, categories were created from the findings and their percentage distributions were given in tables. In the direct quotations in the tables, the participants were named as P.1, P.2, etc. In the formula applied to test the analysis of the researchers and the analysis performed by the other expert, it was determined that there was 87% agreement.

3. Findings

In this section, the findings obtained in the research are presented in tables. Information about the participants' realization of the information they learned in the geography course in the field is presented in tables and direct quotations from the participants' opinions.

Table 2. Findings related to high school students' recognition of stream erosion and deposition patterns in the field.

Category	Number of participants (%)	Participant opinion
I observed valleys as a form of river erosion	65	I saw a valley, one of the forms of river erosion. It was formed by water erosion. The river forms the valley by deep erosion (P.12.)
I observed wear	10	With the constant flow of water, the stones were eroded and sharpened over time. (P.23.)
I observed various shapes	5	We saw valleys, we saw streams. We saw Aladağı. We saw a view like a peanut, we saw the snowy mountain. (P.3.)
I observed a valley shape	5	I saw that the part of the valley where the water was located was small in height and the surrounding area was very large and wide, and its formation was due to natural factors. (P.4.)
I observed soil erosion	5	The soil of the river is formed by the deep erosion of the valley by the river and the erosion of the soil by the water. (P.11.)
I observed mountain and permanent snow	5	I didn't see any form of erosion I saw mountains, I saw permanent snow (P.16.)
I observed the eroding mountain accumulating stone	5	I saw an eroded mountain, the river had eroded the mountain and there were stones in the form of accumulation (P.33.)

When Table 2 is analyzed, it is seen that during the field study, a significant portion of high school students stated that they observed the valley (65%), one of the river erosion patterns in the field study area (Figure 3). It was stated by the participants that there is deep erosion in the river valley. Some of the participants answered the question as "I observed wear" (10%). While 5% of the participants stated that they observed various shapes (valley, river, Aladağ, landscape and snowy mountain), 5% of the participants stated that they saw a valley without specifying the type of formation. There were also respondents who reported observing soil erosion (5%), mountain and permanent snow (5%), and eroding mountain and accumulated stone (5%).

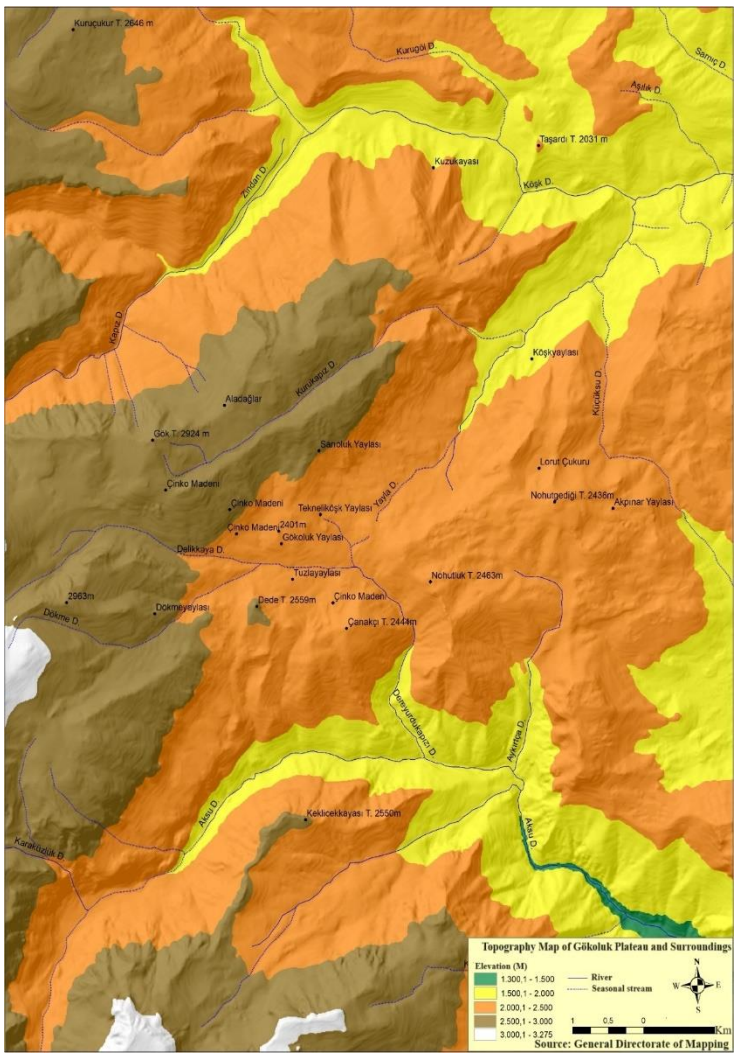

Figure 3. Topography map of Gökoluk Plateau and its surroundings.

Table 3. Findings related to high school students' recognition of rocks in the field.

Category	Number of participants (%)	Participant opinion
Observed limestone	72.5	We saw limestone rocks. Its other name is limestone (P.17.)
I observed sandstone	10	There was sandstone, it was easy to crumble (P.5.)
I observed volcanic rocks	10	There were volcanic rocks. They were eroded (physical) rocks. (P.19.)
I observed hard rocks	5	Hard shiny rocks (P.4.)
I observed soft rocks	2.5	There were soft rocks (P.6.)

When Table 3 is analyzed, it is seen that a significant portion of high school students (72.5%) stated that they observed limestone in the field study area (Figure 4). While some of the participants who responded to the question posed answered limestone or limestone, a significant number of them stated that limestone is another name for limestone. It is understood that there are participants who stated that they observed sandstone, volcanic rocks, hard rocks and soft rocks in the field study area.

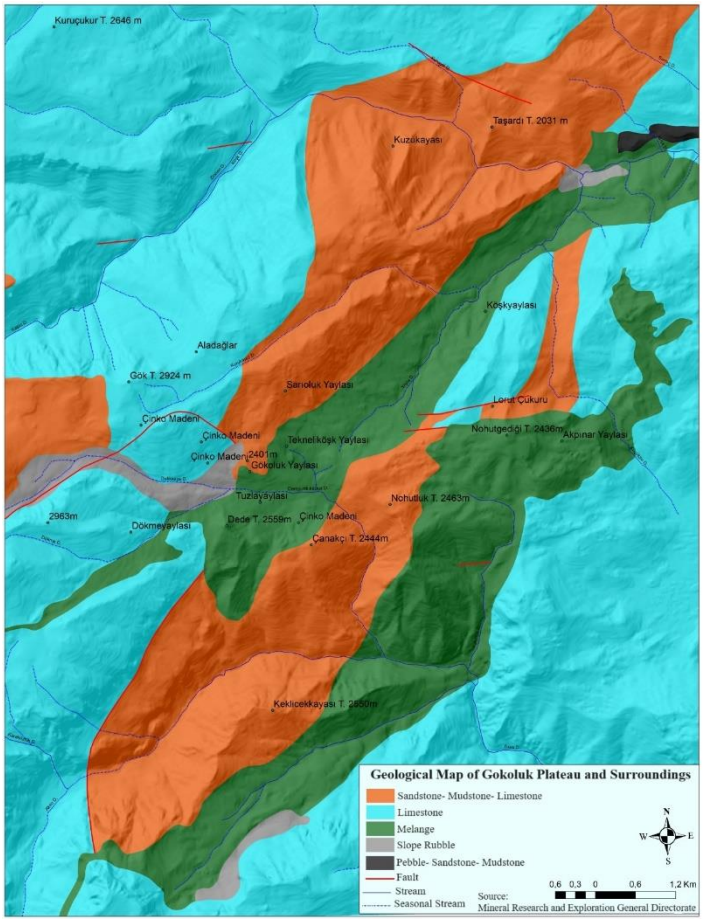

Figure 4. Leology map of Gökoluk Plateau and its surroundings.

Table 4. Findings related to high school students' recognition of glacier erosion or deposition patterns in the field.

Category	Number of participants (%)	Participant opinion
I could not observe because we did not go to a high point	35	I didn't see it because we didn't go up too high (P.3.)
I could not observe it because it disappears with wear	35	We did not see it because it was destroyed due to excessive wear (P.7.)
I could not observe because there was no glacier	20	I didn't see any glacier erosion. I didn't see any deposition. We didn't see it because there is no glacier to erode or deposit them. (P.19.)
I could not observe it because the ice age has passed	10	We didn't see these shapes because we survived the ice age (P29.)

When Table 4 is examined, 35% of the participants stated that they did not observe glacier erosion and deposition patterns in the field study area during the field study. The justification for this is that the elevation of the study area is below the permanent snow limit. While 35% of the participants stated that they did not see glacial erosion and deposition patterns, they stated that these patterns disappeared due to erosion. It is understood that 20% of the participants stated that they did not see glacial erosion and deposition because there was no glacier, while 10% of the participants stated that they did not see glacial erosion and deposition because the ice age had passed.

Table 5. Findings related to high school students' recognition of main landforms in the field.

Category	Number of participants (%)	Participant opinion
Mountain observed	30	We saw a high mountain (P.40)
I observed a rocky mountain with a steep side	25	We went up high, one side was flat and one side was steep and rocky, and there were plants we had never seen before. (P.1.)
I observed a mountain of limestone	15	We saw a mountain, the mountain was made of limestone and there were wild plants suitable for animals to eat, we saw the mountain at 2500 m. (P.8.)
I only observed the mountain because I didn't have a bird's eye view	10	We can't call it a plateau since we didn't see the whole land from a bird's eye view, but I saw mountains (P.15.)
I observed a mountain of stones	5	It consists of big stones. For a place to be a mountain, it must be 2000m high. (P.39.)
I went up the mountain and observed the landscape	5	We climbed 3000 m up the mountain, it was very tiring but the view was beautiful. (P.36.)
I observed mountain and plateau	5	We saw the mountain and plateau at 2400 meters, snowy and steep on one side and flat on the other. (P.22.)
Observed dark-colored mountain	5	I saw a mountain. It was dark in color, high and difficult to climb (P.20.)

When Table 5 is examined, it is seen that 30% of the participants stated that they observed a mountain in response to the question about high school students' recognition of the main landforms in the field study area during fieldwork. It is understood that 25% of the participants again observed a mountain, but they expressed this mountain in the way they saw it. It is understood that 15% of the participants again observed a mountain, but they expressed this with the rock material that makes up the mountain. The 5% of the participants stated that they observed a mountain of stones, a landscape, a mountain and plateau and a dark colored mountain.

Table 6. Findings related to high school students' knowledge about the formation of the main landforms they observed.

Category	Number of participants (%)	Participant opinion
Curving mountain range formation	40	Mountains curved and rose, curving to form mountain ranges. (P.18.)
Formed by the Alpine-Himalayan range	35	It was formed by a succession from Italy to China. (P.2.)
Anticlinal - Synclinal formation	15	A mountain is formed by folds and fractures / volcanism. The mountain here is a fold mountain structure. It has an anticlinal/ synclinal structure. (P.37.)
High mountain formation with folds	10	It is the formation of high mountains by folding (P.32.)

When Table 6 is examined, 40% of the participants stated that the main landform was a mountain range rising by curving in response to the question about the formation of the main landforms they observed, which high school students gave as an answer to question 4 during the field study. While 35% of the participants stated the formation with the Alpine-Himalayan Mountain range, 15% of the participants gave the answer of anticlinal-synclinal formation. 10% of the respondents gave the answer of folded high mountain formation.

Table 7. Findings related to the information provided by high school students to compare the weather characteristics between their place of residence and the field study area.

Category	Number of participants (%)	Participant opinion
Low temperature in the study area due to elevation difference	55	It is hot where we live because the elevation is low, but it is cold here because it is high (P.26.)
Cold because the working area is mountainous	10	We are on a mountain slope and it is cold here because it is mountainous (P.14.)
Cold winds in the study area, so the temperature is low	10	It is hot where we live because of the altitude. Compared to there, the temperature is lower here because the cold wind blows from the valley. (P.13)
Cold because the working area is in the widow	10	It was hot where we live and around our school when we were on the road. It is colder here because it is the northern slope (P.21.)
The worksite is cold and cool	5	Where we live is warm and hot, whereas here it is cold and cool (P.38.)
There is heat loss due to elevation difference in the working area	5	It's cold where we are. It was cold at noon when it should have been warmer. This is because where we are is higher than where we live, so there is no forest. There is nothing to keep the temperature (P.35)
The temperature in the study area is low due to the elevation difference and the effect of aspect.	5	The temperature is inversely proportional to the altitude. At 200 meters the temperature drops by 1 degree. Our place is around 1100 meters and the place we came from is at 2500 meters. The temperature is as low as 7 degrees Celsius and the aspect is also effective here. (P.25.)

When Table 7 is examined, 55% of the participants answered that there was a low temperature in the study area due to the difference in elevation to the question asked to compare the weather characteristics between the place where high school students lived during the field study and the field study area. All of the participants stated that the temperature in the field study area was lower than where they live. While expressing this situation, it is understood that the reason for low temperature is that the study area is mountainous (10%), cold winds are effective in the study area (10%), the study area is in the widow (10%), the study area is cold and cool (5%), heat loss in the study area (5%), elevation difference and aspect effect in the study area (5%).

Table 8. Findings related to high school students' explanations of the vegetation differences between their places of residence and the field study area and their reasons.

Category	Number of participants (%)	Participant opinion
Steppe vegetation exists because of the low human impact.	45	Steppe vegetation. There are more plants and the reason for this is that human impact is less here (P.9.).
Same vegetation as where I live	37.5	Terrestrial/steppe/ steppe vegetation is seen. Plant diversity is more than where I live, but vegetation diversity seems to be low (P.10.).
There are wild plants and mullein because there is little human influence.	12.5	There are more wild plants. We saw more mullein plants. Since there are not many people living here, these plants are more common. (P.27)
There is steppe vegetation because the chemical effect is low	2.5	There is more steppe vegetation here and the reason for this is that the chemical impact is less here. (P.2.)
Where I live is more wooded	2.5	Where we live, the vegetation is lush and there are more trees. There are no trees here (P.4.)

Table 8 shows the responses of high school students to the question about their awareness of the differences in vegetation cover between where they live and the field study area and the reasons for these differences. When the responses are analyzed, the following results emerge: 45% of the participants stated that there is steppe vegetation in the study area (Figure 5).

They justified the presence of steppe vegetation in the study area with the low human impact. 37.5% of the participants stated that there is similar vegetation in the study area with the place where they live. 12.5% of the participants stated that there were wild plants and cattail in the study area and that the low human impact was effective in this situation. 2.5% of the participants stated that they observed steppe vegetation in the study area and the reason for this was the low chemical impact. 2.5% of the participants stated that the place where they live has more trees.

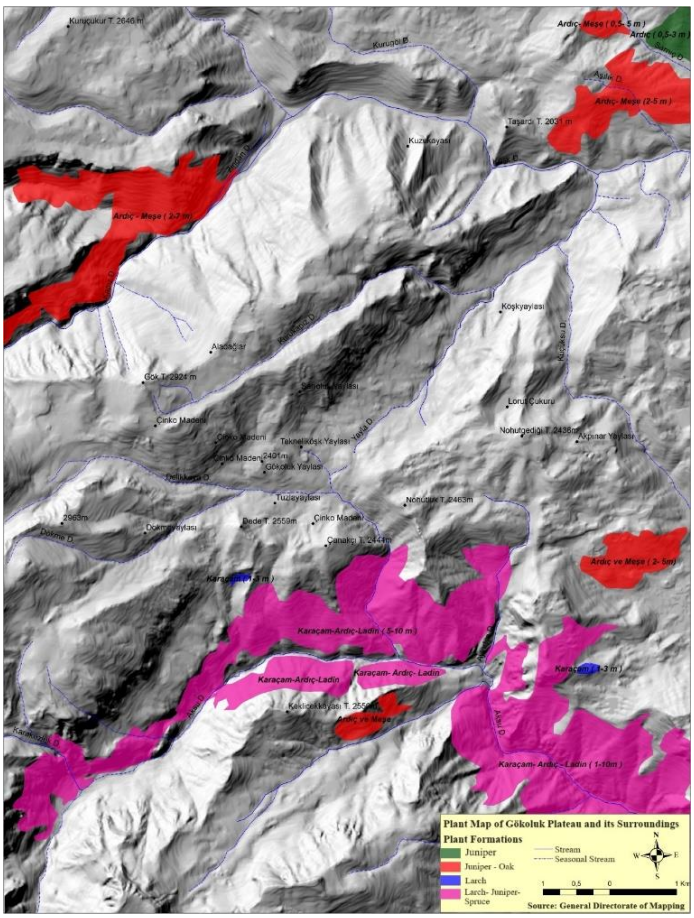

Figure 5. Vegetation map of Gökoluk Plateau and its surroundings.

Table 9. Findings related to high school students' recognition of soil properties in the field.

Category	Number of participants (%)	Participant opinion
I observed dark-colored, thin-layered soil due to temperature	30	Soil colors are more pronounced and soil thickness is less in the land region. Because there is elevation, soil formation is less in cold places. (P.34.)
Dark in color, I observed thin-layered soil as formation is slow	30	The soils here are darker in color and less thick because soil formation is slow here. (P.11.)
I observed calcareous soil with less thickness due to the elevation	10	Because of the high elevation, there is little soil formation. There is some formation, but not enough to form thick soil. This results in thin calcareous soil. (P.24.)
I observed different colored, thin-layered soil	10	The soil colors are different and when I dug the thin soil here, the rocks coincided. (P.4.)
I observed light colored thin-layered soil with slow formation	10	There are stones everywhere, the soil is thinner here, I guess it was formed recently and slowly. Places with lighter and darker colors were visible from a distance. (P.25.)
There was no different soil	5	There was no different soil structure. It was the same soil as our place (P.31.)
I observed reddish soil with a thick layer	2.5	The soil on the mountain is reddish in color and thicker than the soil where we live. (P.3.)
I observed infertile dark soil	2.5	There are infertile dark soils here and fertile light-colored soils where I live. (P.8.)

Table 9 shows the answers given by high school students to the question about their awareness of soil properties in the environment during fieldwork. 30% of the participants stated that they observed dark-colored, thin-layered soil due to temperature (Figure 6). 30% of the participants stated that they observed dark-colored soil but thin-layered soil because the formation is slow. Among the respondents, there are those who stated that they observed calcareous soil with less thickness due

to the elevation (10%), those who stated that they observed thin-layered soil with different color (10%), and those who stated that they observed thin-layered soil with light color and slow formation (10%). While 5% of the participants stated that they observed the same soil as the soil where I live, 2.5% of the participants stated that they observed reddish soil with a thick layer. Those who said that they observed infertile dark colored soil constitute 2.5% of the respondents.

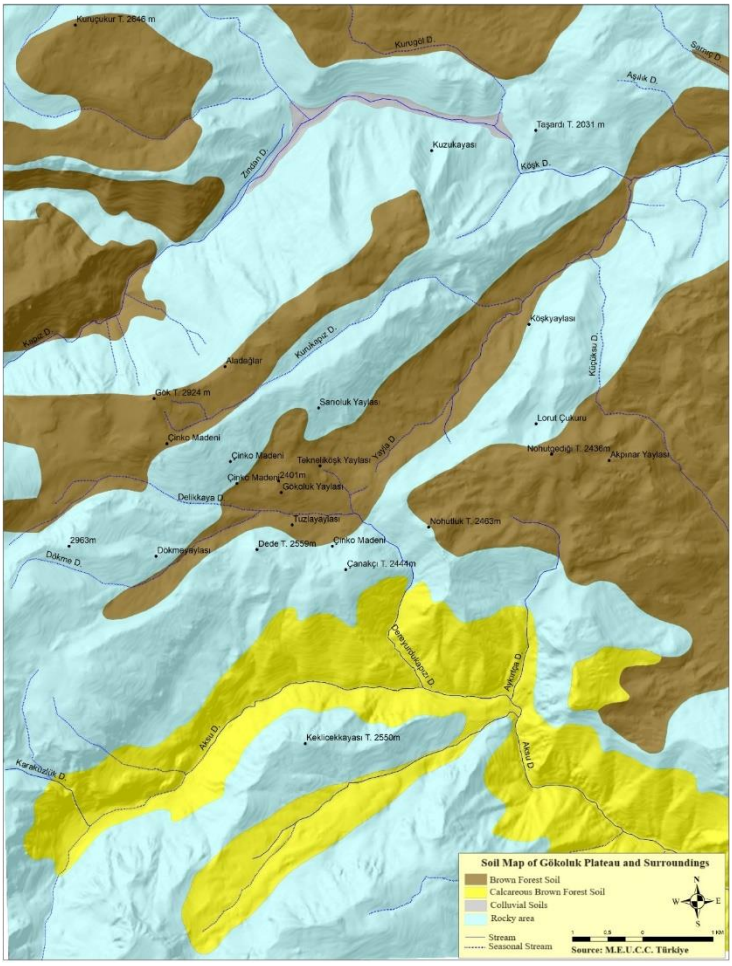

Figure 6. Soil map of Gökoluk Plateau and its surroundings.

Table 10. Findings related to high school students' recognition of economic activities and reasons for doing them in the field.

Category	Number of participants (%)	Participant opinion
I observed pastoralism, beekeeping, transhumance	37.5	There is pasture animal husbandry (small cattle and cattle breeding) beekeeping. There is seasonal transhumance. Agriculture is not practiced here because the land is sloping and high. (P.2.)
I observed intensive pasture farming	20	Where I live, agriculture and craftsmanship are common. Livestock breeding is done in barns. There is pasture animal husbandry here. Both bovine and ovine. Because it is high (P.28.)
I observed pastoralism and transhumance	20	Due to the high elevation, there is no agricultural industry and no craftsmanship. Pasture animal husbandry and transhumance are common. (P.19.)
Observed livestock activity	10	Since it is not a flat land, there is no agriculture in the mountains and animal husbandry is common (P.6.)
I only observed livestock	7.5	Where I live, agriculture and craftsmanship are practiced whereas here, only animal husbandry is practiced and people pasture goats, sheep and cows. (P.30)
I observed pasture animal husbandry because of the grassland	5	Due to the rugged and rocky structure, pasture animal husbandry is practiced instead of barn animal husbandry (P.8.)

When Table 10 is examined, it is seen that the answers given by the high school students to the question about the situation of realizing the economic activities carried out in the field study area and the reasons for these economic activities in the field during the field study. 37.5% of the participants stated that they observed pastoralism, beekeeping and transhumance, but they did not express an opinion on the reasons. 20% of the participants stated that they intensively observed pasture animal husbandry and the reason for this was the high elevation of the land study area. While some of the participants (20%) stated that they observed pastoralism and transhumance, they justified the lack of sectors such as agriculture, industry and craftsmanship for pastoralism due to the high elevation in the land study area. The rate of those who said they observed animal husbandry is 10%. Participants who stated that there is no flat land as a reason stated that animal husbandry is practiced because agriculture cannot be practiced. 7.5% of the participants stated that they only observed animal husbandry. 5% of the participants stated that they observed pastoralism because there is grassland in the field study area (Figure 7).

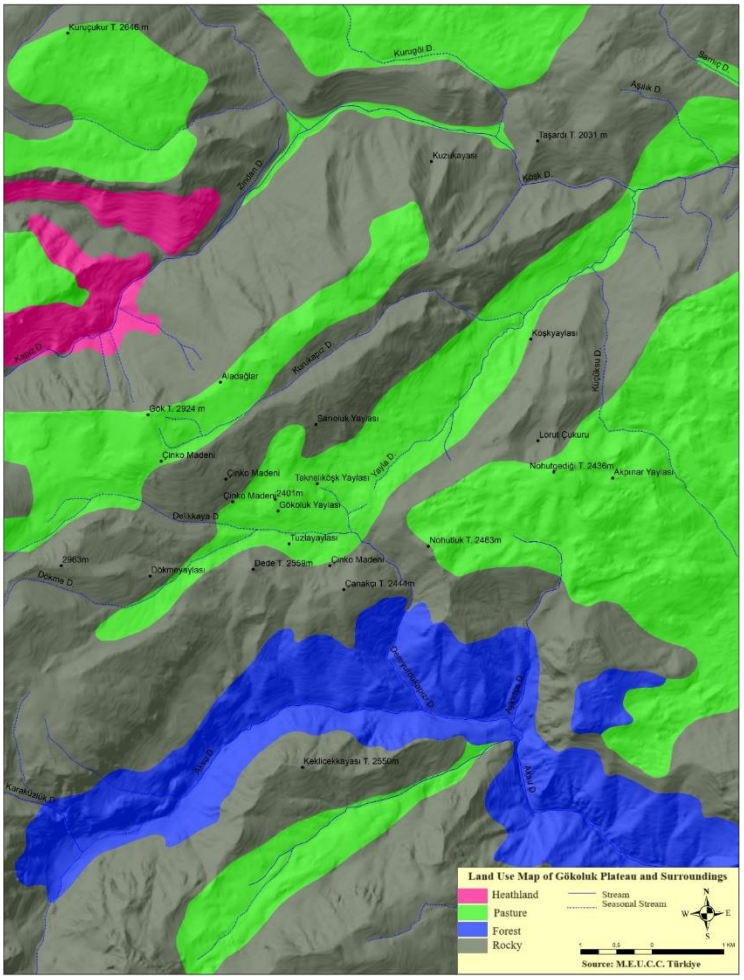

Figure 7. Land use map of Gökoluk Plateau and its surroundings.

4. Conclusion, Discussion and Recommendations

According to the results of the research, results were obtained under nine different headings. The first of these is that the students were able to recognize the river erosion patterns in the field. While expressing this, they also stated that river erosion continues in some areas. The second result is that the students were able to express which rock is found in the study area and its properties. The third conclusion is whether glacial erosion and deposition is present in the study area. A significant number of respondents stated that glacial erosion and deposition did not exist, but the tools varied. According to the fourth result, the participants stated that they saw mountains among the main landforms in the field study area. The fifth conclusion is about the formation of the mountain observed according to the fourth conclusion. Students stated that these mountains rise by curving. According to the sixth result, the students noticed that the weather conditions differed between where they lived and the field study area and stated that this was due to the difference in elevation (1325 meters) between where they lived (average elevation: 1125 meters) and the field study area (average elevation: 2450 meters). According to the seventh result, the participants made inferences about the characteristics of the dominant vegetation based on the plants in the field study area. According to the eighth result of the study, the participants

recognized soil types and properties in the field study area. According to the ninth and final result, the participants realized the economic activities and the reasons for these economic activities in the field study area and gave explanations expressing this situation.

In the 2018 Geography Curriculum, which started to be implemented in 2018, there are 14 outcomes directly associated with the ability to work in the field (MEB, 2018). Field studies are important as "the most powerful way to develop an understanding of the environment" with the opportunity for direct and first-hand experience (Gerber, 1996). Geography is fortunate in that places can be experienced first-hand. An important emphasis of fieldwork is often on developing a "sense of place" in students, which is very important in geography lessons (Department of Education and Science, 1990). In the study conducted by Woolhouse (2016), it was concluded that field studies develop high-level study skills, the importance of field studies in this regard is increasing and the skills developed will be strengthened if field studies are continued. According to Wei (2011), teaching geography only in the classroom environment and not conducting field studies are the main factors that prevent students from participating in geography studies. In another study, it was concluded that students also wanted to be active in the planning and realization of field studies (Yang et al., 2013). This finding is supported by the results of Peasland et al. (2019). According to the results of the study, it was concluded that when students are given more tasks and responsibilities in field studies, transferable skills develop better. The fact that the students supported the questions they asked during the field study and discussed the answers they gave to the questions among themselves shows that the field study is important for the development of communication skills. This supports Tan et al. (2007)'s finding that fieldwork provides students with the opportunity to build relationships and interaction skills with peers and different people in the community. In the research conducted by Chew (2008), the most important purpose of conducting geographical fieldwork is to enable students to identify and collect geographical information and to enable students to apply their findings to the wider world. In a study by Lambert and Reiss (2014), it was stated that field studies in schools have a strong tradition and are effective in making discoveries in the real world. In the study conducted by Leydon and Turner (2013), it was found that conducting field studies together with geography lessons was very positive for students. It was concluded that thanks to these activities, students will not only learn geography but also develop some skills by acting with the community. In this context, in our research, it was understood that the students who took the compulsory geography course taught in 9th and 10th grades were able to recognize some geographical shapes in the field, and it was also concluded that permanent learning was realized with the interview conducted after the field study. Based on our findings and the results of the studies in the literature, it can be suggested that field studies should be conducted in high schools at the appropriate time and by choosing appropriate places.

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Conflict of Interest

The authors declare that they have no conflict of interest.

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