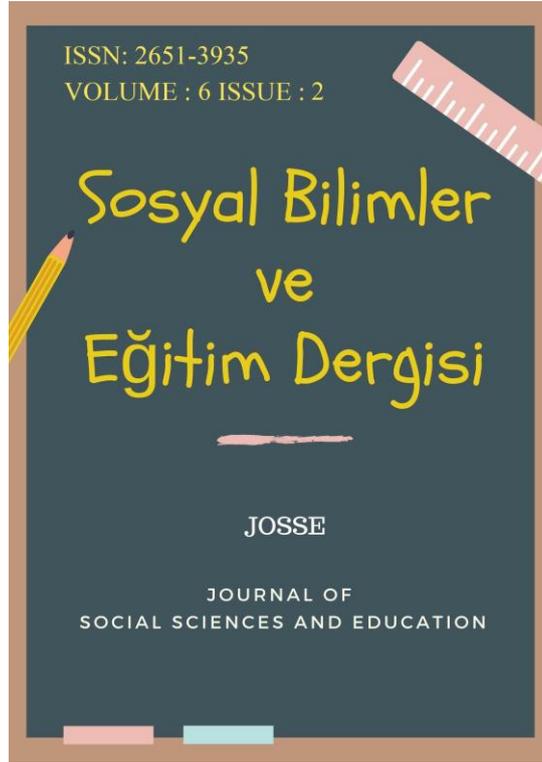


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Determining the Perceptions of Social Studies Teacher Candidates on the Subject of Political Geography by Word Association Test (WAT)

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Abstract

This research aims to investigate the cognitive structures of social studies teacher candidates regarding political geography with the word association test. The scanning method was used in the research. 4th-grade social studies teacher candidates at a state university in Turkey in the 2022-2023 academic year participated in the research. We conducted the research with 26 teacher candidates, selected using the criterion sampling method, one of the purposeful sampling methods. The Word Association Test (WAT) form obtained the research data. "Political geography, geographical necessity, dominance theory, continental shelf, problematic region, a form of government, international power struggles, conflict zones, geopolitics, and Turkey's neighbors" were keywords in the WAT form. Prospective teachers formed concepts regarding each keyword, and we created a frequency table for these concepts. Then, we prepared concept network maps based on this frequency table. We used the breakpoint technique in the preparation of the concept network maps. As a result of the research, social studies teacher candidates formed 561, a concept about political geography. When the sentences made by social studies teacher candidates about political geography concepts were examined, it was determined that the number of sentences containing scientific information was 161, and the number of sentences containing non-scientific or superficial information was 86. As a result of the research, the word association test is an important tool in determining prospective teachers' perceptions of certain concepts. It is recommended that social studies teacher candidates be given training to improve their cognitive levels on the subject.

Keywords: Word association test, political geography, social studies, teacher candidate

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Introduction

Social studies, in order to help the social existence of the individual, includes social sciences such as history, geography, economy, psychology, philosophy, sociology, anthropology, political science and law, and citizenship subjects, as well as bringing together the learning areas in a unit, and includes the individual's social. It is a course prepared based on mass education, in which communication with the physical environment is investigated in the context of the past, present, and future (Ministry of National Education [MEB], 2005). Social studies are a course that includes various disciplines and derives its resources from the knowledge, skills, and concepts of these social science disciplines (Öztürk, 2009). Social studies, which constitute the basic building blocks of education systems in our age, is considered indispensable and is taught as a compulsory course by the state (Şişman, 2014). is a type of course that helps individuals establish the connection between their past, present, and future and develops them in many aspects (Aykaç & Adıgüzel, 2011). Social studies aims to raise citizens equipped with the basic knowledge, skills, and values required by their age, who use the concepts and methods of social sciences, who are actively productive, and who know and use their rights and responsibilities (Kaymakçı, 2009). Therefore, social studies course is taught by selecting and kneading information from social disciplines such as sociology, political science, psychology, history, and geography with an interdisciplinary approach (Sözer, 1998). Geography, whose subject is “to investigate, examine and question the relations between the earth and people,” is a branch of science that “examines and investigates the distribution of these events and the reasons affecting this distribution” (Yazıcı & Koca, 2011). Geography education is defined as “enabling students to examine problems about natural and human events by gaining different perspectives and finding answers to them by determining and using different scales, to understand the world from one part to another locally and generally, to gain an investigative nature and the ability to solve problems inside and outside the classroom.” evaluated (Karabağ, 2001). Political geography examines the geographical arguments of various policies, political goals, decisions, and activities of countries, organizations, and organizations. It analyzes the impact of these geographical arguments on various policies, political goals, decisions, and activities. It involves investigating the impact of geographical location on various strategic relations between states or regions (Akengin, 2019). Political geography can be defined as the science that examines the causes, consequences, distribution, and connections between physical and human events

in the whole world or only in a particular region or state and determines various views or approaches to running the state order (Özey, 2013). A look at geography in economic geography, from an economic perspective; in historical geography, this perspective is from a historical perspective, and in political geography, this perspective is from a political perspective. However, no matter what angle it is viewed from, as in the interpretation of economic, historical, and political events, geographical factors inherent in geography always maintain their weight (Günel, 1997).

It became possible for the social studies teaching undergraduate program to take its place in the Turkish education system as an independent field in the Republic period in 1998. In addition, the renewal of the social studies undergraduate program was carried out in 2006. Since this period, geography group courses, one of the essential elements of social studies, have found a place in the program. The geography group, which consists of 8 courses in total, includes courses named General Physical Geography, General Human and Economic Geography, Geography of Countries, Human and Economic Geography of Turkey, Physical Geography of Turkey, Geography of Environmental Problems, Contemporary World Problems and Political Geography (Kaymakçı, 2012). In the Political Geography and Geopolitics of Turkey course, the political formation of the European Union, the Middle East, the Balkans, Cyprus, the Caucasus, and Central Asia is discussed in line with the physical and human factors influential in political geography. Prospective teachers of the Political Geography and Geopolitics of Turkey course may gain information about their countries and communities' geographical and political aspects (Council of Higher Education [YÖK], 2018). Accordingly, it is thought that the cognitive structures of prospective teachers on this subject should be examined, taking into account the contents of the courses they took during their undergraduate education, and the deficiencies in their cognitive structures, if any, should be eliminated.

When the relevant literature is scanned, it appears that studies have been conducted directly on political geography, especially Süha Göney, Ramazan Özey, and Hamza Akengin (Akengin, 2019; Göney, 1979; Özey, 2013). On the other hand, it is seen that some research has been conducted on political geography in social studies (Aksoy & Karaçalı, 2014; Çoban & Şahin, 2018; Ersoy & Ayaydın, 2023; Gülüm, 2014; Karakaya & Öner, 2021; Uğurlu & Doğan, 2016; Uğurlu & Akdovan, 2019; Yılmaz & Yiğit, 2010). In addition, many studies have been conducted on the examination of cognitive structures in social studies (Açıkgöz, 2019; Akdoğan, 2022; Aladağ & Yılmaz, 2014; Balcı, 2019; Çelik & Çakmak, 2023;

Çelikkaya & Kürümlüoğlu, 2019; Çetin & Yel, 2022; Çetin & Uslu, 2022; Demirer & Şaşmaz Ören, 2020; Demirkaya et al., 2020; Deveci et al., 2014; Durmuş & Sert, 2022; Er Tuna, 2018; Gençoğlu, 2019; Karaca & Yalçınkaya, 2019; Karakuş, 2019; Özkaral and Bozyiğit, 2021; Özyurt & Ercan Yalman, 2020; Şimşek, 2013; Tokcan & Yiter, 2017; Turgut & Kaymakcı, 2019; Ünal & Er, 2017; Yılar & Ünal, 2022; Yılmaz, 2019). However, there is no study examining the cognitive structures of social studies teacher candidates regarding political geography issues. However, social studies teachers are essential in helping future generations know the impact of geographical location on various strategic relations between states or regions. It is thought that this research will contribute to filling the gap in the literature and will guide future research on the place of political geography in social studies education undergraduate programs.

This research aims to examine the cognitive structures of social studies teacher candidates regarding political geography using the word association test. For this purpose, “What are the cognitive structures of fourth-grade social studies education undergraduate program teachers regarding the subject of political geography?” The answer to the question has been sought.

Method

This part of the research includes information about the research model, study group, data collection tool, data collection, and data analysis.

Model

The scanning model detects a past or present situation as it exists (Karasar, 2018). While the variables that exist in a particular situation are determined with the scanning model, the relationships between these variables are also determined (Johnson & Christensen, 2014). In line with these explanations, the survey model was used in the current research to determine social studies teacher candidates' concepts about political geography. The research was conducted considering that the screening model was suitable for determining the cognitive structures of prospective teachers on political geography using the word association test. Thus, misconceptions can be detected by associating prospective teachers' thoughts about political geography positively or negatively.

Sample and Population

This study group consisted of 4th-grade social studies teacher candidates studying at a state university in Turkey in the 2022-2023 academic year. The criterion sampling method, one of the purposeful sampling methods, was used to determine the study group. Criterion sampling is preferred in determining participants with appropriate qualifications in line with the purpose of the research (Büyüköztürk et al., 2017). In the current study, the selection criteria were determined as having taken the “Political Geography and Geopolitics of Turkey” course and not having participated in a study on the WAT before. A total of 26 social studies teacher candidates, nine males and 17 females, participated in the research.

Data Collection Tools

WAT was used to determine social studies teacher candidates' concepts regarding political geography. A word association test is a technique that enables direct examination of the perceptions created by predetermined words in individuals. Participants write the first concepts that come to mind to the keywords included in the WAT (Sato & James, 1999; Şimşek, 2015). In the current study, WAT was used to reveal the cognitive structures of social studies teacher candidates regarding the determined concepts and to identify possible misconceptions. In the data collection tool in the WAT form, “political geography, geographical necessity, theory of dominance, continental shelf, problematic region, a form of government, international power struggles, conflict zones, geopolitics, and Turkey's neighbors” were used as keywords. In determining these keywords, the subject area was first examined, and the keywords that were thought to be necessary within the scope of the subject were determined by the researcher. In order to determine that the determined keywords were within the scope of the subject, opinions were taken from 2 geography education experts. The sample concept in the WAT form is presented as follows.

Table 1

WAT Sample Application Page

When you see the following concepts, write the first words that come to your mind in the spaces next to them. You have one (1) minute to write the words.

Political Geography

Political Geography

Political Geography

Political Geography

Political Geography

Write the sentence that comes to your mind about political geography in the section below.

Related Sentence

Collection of Data and Analysis

Before the application, prospective teachers were explained the WAT form and information on how to fill out the form. Then, an example application regarding a concept not included in the form is presented. Students were given 1 minute to write the first concept that came to mind for each keyword in the form. Then, they were asked to write a sentence about the relevant concept. The data obtained with the data collection tool were examined in detail. The frequency of concepts created by prospective teachers for ten key concepts was determined. While calculating the frequency, the identification of the words that the prospective teachers associated with the concepts given in the WAT form and their frequency of repetition were taken into account. In line with this frequency table, concept network maps were created in the CMaps program. The concept network maps indicate the connections between the answer words created by the teacher candidates for each keyword. In the creation of the prepared concept network maps, Bahar et al. (1999) prepared by (1999) was used. Accordingly, the highest cut-off point is determined by taking the middle number of the most repeated words of each key concept in the form. This situation is repeated until the words are finished by creating another breakpoint by taking the midpoint of other repeating words (As cited in Ercan & Taşdere 2010).

In the data obtained within the scope of the research, cut-off points were determined according to the most frequently repeated word. Accordingly, the cut-off point ranges were determined by decreasing the range in accordance with the cut-off point criteria in the literature. In the WAT form, to examine prospective teachers' cognitive structures in-depth, the participants were asked to write a sentence regarding the relevant concept. In the analysis of these sentences, Ercan & Taşdere's (2010) classification (sentences containing scientific information, containing non-scientific or superficial information, and containing misconceptions) was used. In ensuring the validity of the research, the researcher displayed an objective attitude during the data collection process. Additionally, in order to ensure the validity of the research data, the data obtained was analyzed by another researcher, and researcher triangulation was performed. The reliability of the research was ensured by including direct quotations to support the findings (Patton, 2014).

Ethical Committee Approval

The ethical review was carried out by = Kastamonu University Social and Human Sciences Research Ethics Committee.

Date of the decision on the ethical review: 05.10.2023

Issue number of the certificate of ethical review: 2023/11-26

Findings

Under this heading, the findings of the pre-service social studies teachers related to the words they associate with the concepts of political geography in the word association test are included and explained with tables and figures:

Table 2

Findings on the Number of Words That Pre-Service Social Studies Teachers Associate

Concepts within the Word Association Test

| Concepts | f | % |
|-----------------------------------|------------|------------|
| Geographical Necessity | 73 | 13,01 |
| Dominance Theory | 70 | 12,49 |
| Problem Area | 68 | 12,12 |
| Conflict Zones | 64 | 11,41 |
| International Migration Struggles | 63 | 11,23 |
| Geopolitics | 55 | 9,80 |
| Continental Shelf | 52 | 9,27 |
| Political Geography | 44 | 7,84 |
| Form of Management | 44 | 7,84 |
| Turkey's Neighbors | 28 | 4,99 |
| Total | 561 | 100 |

According to the table, 561 words were associated with political geography concepts in the Word Association Test of social studies teacher candidates. 73 (13.01%) of the words associated by pre-service social studies teachers are geographical necessity, 70 (12.49%) are dominance theory, 68 (12.12%) are problematic regions, 64 (11.41) are conflict zones, 63 (11.23) are international migration struggles, 55 (9.80) are geopolitics, 52 (9.27%) are continental shelf, 44 (7.84%) are political geography and management style, and 28 (4.99%) belong to Turkey's neighbors. Accordingly, when the number of words that the pre-service teachers associated with political geography in the table was examined, it was determined that they associated the most with geographical necessity and the least with Turkey's neighbors.

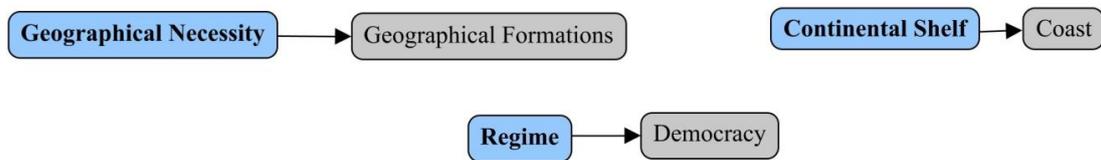
The words related to the pre-service social studies teachers participating were examined using the breakpoint technique in Figure 1.

Figure 1.

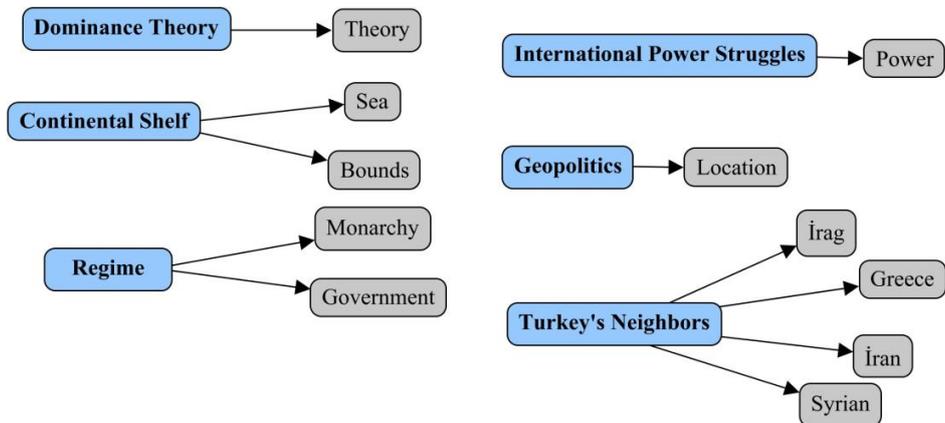
Breakpoint 28 and up



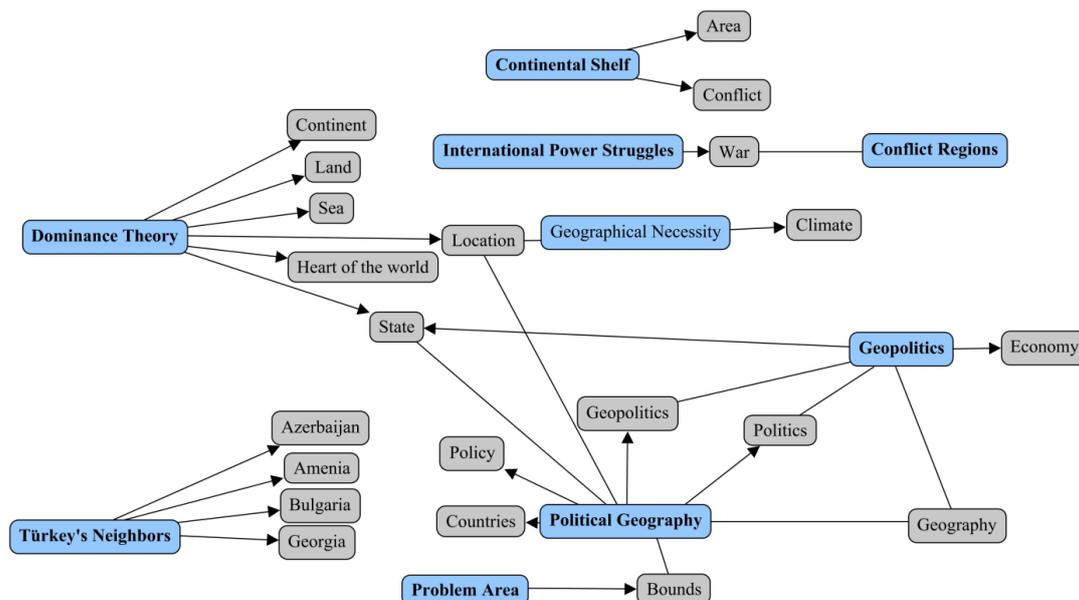
Breakpoint 22-18



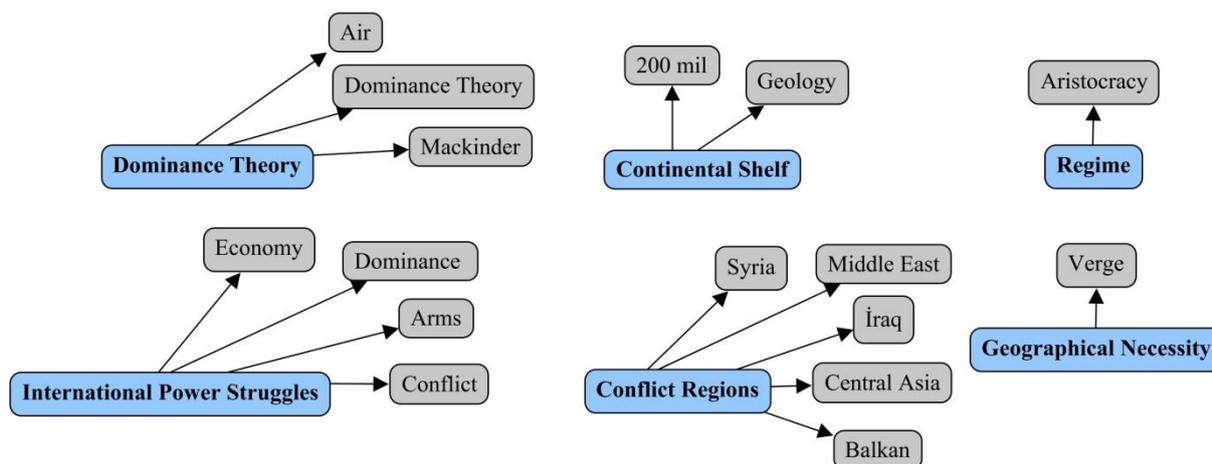
Breakpoint 17-13



Breakpoint 12-8



Breakpoint 7-3



In the word association test, each central concept whose breakpoints are examined is shown in blue, and the words associated with the image are gray.

At the cut-off point 28 and above, it was determined that the pre-service social studies teachers who participated in the survey were most associated with the conflict zone out of ten political geography concepts. Accordingly, pre-service teachers make the most associations about this concept due to Turkey's geopolitical position.

It was determined that the pre-service social studies teachers who participated in the research between 22-18 cut-off points associated words with the concepts of geographical necessity, continental shelf, and management style. When the terms related to these concepts were examined, they associated the geographical elements such as landforms and the coast of the pre-service teachers and the idea of democracy with a libertarian expression.

When the words associated with the concepts between cut-off points 17-13 were examined, it was seen that the pre-service social studies teachers related words with the concepts of dominance theory, international power struggles, geopolitics, Turkey's neighbors, form of government, continental shelf and form of administration. They have been determined to associate these concepts with words such as theory, sea, waters, borders, monarchy, government, power, position, Iraq, Greece, Iran, and Syria. When we look at the words associated with the pre-service teachers, there is an increase in the terms related to these concepts.

When the concepts of political geography associated with cut-off points 12-8 are examined, it is determined that pre-service social studies teachers have the pictures of dominance theory, Turkey's neighbors, continental shelf, international power struggles, geographical necessity, geopolitics, problematic region, conflict zones, political geography. There is an increase in the number of concepts given within the scope of the research at this cut-off point for pre-service teachers. On the other hand, when we look at the words associated with pre-service teachers, it is seen that it is related to geographical and political elements such as continent, land, sea, the heart of the world, state, location, area, conflict, war, climate, economy, geography, borders, countries, geopolitics; It has been revealed that they have associated with border countries such as Azerbaijan, Armenia, Bulgaria, and Georgia. When we look at the number of words related to the concepts in the word association test in general terms, the number of comments associated increases as the breakpoint interval narrows.

When the cut-off point 7-3 interval is examined, it is seen that it is associated with the concepts of dominance theory, international power struggles, continental shelf, conflict zone, and geographical necessity. Pre-service teachers associated these concepts with words such as weather, dominance theory, Mackinder, economy, domination, aristocracy, Balkan, Syria, the Middle East, Central Asia, Iraq, and conflict.

The findings obtained as a result of the analysis of the sentences made by the pre-service teachers about the concepts of political geography are explained in Table 3:

Table 3

Findings on Pre-Service Social Studies Teachers' Sentences on Political Geography Concepts

| Concepts | Number of Scientific | Number of Sentences Containing Unscientific or | Number of Sentences |
|-----------------|-----------------------------|---|----------------------------|
|-----------------|-----------------------------|---|----------------------------|

| | Sentences | Superficial Information | Containing Misconceptions |
|-----------------------------------|------------|-------------------------|---------------------------|
| Political Geography | 14 | 12 | - |
| Geographical Imperative | 10 | 16 | - |
| Dominance Theory | 18 | 8 | - |
| Continental Shelf | 19 | 7 | - |
| Problem Area | 13 | 12 | 1 |
| Form of Management | 20 | 6 | - |
| International Migration Struggles | 22 | 4 | - |
| Conflict Zones | 17 | 9 | - |
| Geopolitics | 15 | 9 | 2 |
| Turkey's Neighbors | 13 | 3 | - |
| Total | 161 | 86 | 3 |

When the sentences of social studies teacher candidates about the concepts of political geography were examined, it was determined that the number of sentences containing scientific information was 161, and the number of sentences containing non-scientific or superficial information was 86. In addition, it was determined that the number of sentences containing misconceptions was 3.

It was determined that the pre-service teachers made 14 sentences with scientific content and 12 sentences with non-scientific or superficial information content about the concept of political geography. On the other hand, it was observed that the pre-service teachers did not make sentences, indicating that there was a misconception. In this direction, pre-service teachers drew attention to the effect of geographical location, the plans of the countries, and their examination of a cause-effect relationship in their scientific sentences. Looking at the statements of the teacher candidates, SB3-E draws attention to the effect of geographical location; “The positive and negative situations provided by geographical conditions to the states and their relations with other states by taking into account these situations.”, to the plans of the countries and their examination in the relationship of cause and effect, SB14E; “It is an area that regulates the borders of countries and their relations with other countries, and every country should plan.” and SB22-K; “Political geography is a sub-branch of the science of geography that explains the connection between man and the earth based on the principle of cause and effect.” he said.

It was determined that the pre-service teachers had ten pieces of scientific content and 16 non-scientific or superficial information content regarding the concept of geographical necessity and needed to make a sentence containing misconceptions. It has been observed that pre-service teachers who make sentences with scientific knowledge emphasize the countries' positions. In this regard, SB27-K, “It is a geographical necessity that Greek civilization in ancient times should be established and developed in the valleys between the mountains.” He

said. In the sentence part, which is not scientific information or contains superficial information, pre-service teachers drew attention to the limitations offered by geography. SB9-K on the subject; “It refers to a living condition that living things have to do.” He wrote a sentence in the form of.

It was determined that the pre-service teachers had 18 pieces of scientific content and eight non-scientific or superficial information content regarding the concept of dominance theory and did not make a sentence containing a misconception. This was emphasized in the rulings of the pre-service teachers with scientific knowledge of Mackinder's theory of black domination. Accordingly, SB6-K from teacher candidate's states, “Mackinder's theory of land domination is that the continents of Asia, Europe, and Africa constitute the whole island of the world.” He said. They have written general sentences in which various theories have been put forward in sentences that need more scientific knowledge or contain superficial information. SB22-E on the subject; “In history, various theories have always been put forward to dominate the world.” He said.

It was determined that the pre-service teachers had 19 pieces of scientific content and seven non-scientific or superficial information content regarding the concept of the continental shelf and needed to make a sentence containing misconceptions. In sentences with scientific information, attention was drawn to how far it covers under the sea and what it is. SB5-K on the subject; “The continuation of the territories of the countries under the sea, up to -200 meters.” He said. Sentence SB26-K, which is not scientific information or contains superficial information, “Just because it is far from the headquarters does not mean its steps cannot be reached.”

It was determined that the pre-service teachers had 13 pieces of scientific content and 12 pieces of non-scientific or superficial information about the concept of the problem area, and they needed to make a sentence containing a misconception. Sentence SB13-E with scientific information; “There are problematic regions due to the geopolitical position of the countries.” Sentence SB10-K, which is not scientific information or contains superficial information; “Problem areas are often at the borders.” A pre-service teacher (SB18-K) said about the concept of a problematic region, “The project to benefit from the Euphrates basin and the Tigris basin is called the Southeastern Anatolia Project.” He wrote a sentence in the form of. In this case, it can be said that the teacher candidate does not have enough knowledge about the concept of the problematic region and has a misconception because a

wrong connotation arises in his mind when the southeastern Anatolia region comes to his mind and is called the complex region.

It was determined that the pre-service teachers had 20 pieces of scientific content and six non-scientific or superficial information content regarding management style. They needed to make a sentence containing misconceptions. Ruling with scientific information SB5-K; “The path followed in the state administration.” Sentence SB18-E that is not scientific knowledge or contains superficial information; “True Democracy brings prosperity.” It has also been the first time that the company has

It was determined that the pre-service teachers had 22 pieces of scientific content and four non-scientific or superficial information content regarding the concept of international power struggles. They should have made a sentence containing misconceptions. The sentence with scientific information on the subject is SB13-E; “There are problematic regions due to the geopolitical position of the countries.” A sentence that is not scientific information or contains superficial information is also SB10-K; “Problem areas are often at the borders.” He said.

It was determined that the pre-service teachers had 17 pieces of scientific content and nine non-scientific or superficial information content regarding the concept of conflict zones, and they needed to make a sentence containing misconceptions. The sentence with scientific information is SB13-E, “There are problematic regions due to the geopolitical position of the countries.” and SB6-K, “Areas that differ from the country to which they are affiliated in terms of ethnic, cultural, religious, sectarian or regional characteristics and demand political autonomy or independence by using this difference are the basis of the conflict.” SB10-K in a sentence that is not scientific information or contains superficial information; “Problem areas are often at the borders.” He said.

It was determined that the pre-service teachers had 15 pieces of scientific content and nine non-scientific or superficial information content regarding the concept of geopolitics and needed to make a sentence containing misconceptions. While pre-service teachers who made sentences with scientific knowledge drew attention to the country's position, pre-service teachers who made sentences without scientific knowledge or with superficial information drew attention to factors such as the country's characteristics. In this position, SB12-E, which writes a sentence with scientific information; SB10-K, which makes sentences that are not scientific information and contain superficial information while writing sentences such as “It is the special position of a country”; “Geopolitics determines the characteristics of the world.”

On the other hand, it has been determined that geopolitics is a branch of political geography and that some pre-service teachers need clarification about the subject. A pre-service teacher who was found to have a mistake on the subject SB23-K said, “It is a branch of political geography.” He said.

It was determined that the pre-service teachers had 13 pieces of scientific content and three non-scientific or superficial information content regarding the concept of Turkey's neighbors. They did not make a sentence containing a misconception. It has been determined that the pre-service teachers focus on how many neighbors Turkey has for the relevant concept and make sentences indicating which countries these are. On the other hand, it has been determined that in sentences that are not scientific or contain superficial information, teacher candidates write sentences that are in the interest of the state and that their claims should be considered. In this regard, SB17-K, “Turkey has eight neighbors.” SB24-K; “Turkey's neighbors are countries such as Greece, Iraq and Syria.” SB18-E; “The interests of the state are above all personal interests,” he said.

Discussion and Results

This study aims to examine the cognitive structures of pre-service social studies teachers regarding the concepts of political geography. Within the scope of the research, when the words associated by the pre-service teachers for the concepts specified in the word association test were examined, the results obtained from the study were explained in the paragraphs below.

This study aims to examine the cognitive structures of pre-service social studies teachers related to the subject of political geography with the word association test. In this context, it can be said that the word association test is an effective technique in revealing the cognitive structure (Ozkara, & Bozyiğit, 2021). For this purpose, a total of the keywords “Political geography, geographical necessity, theory of dominance, continental shelf, problematic region, the form of government, international power struggles, conflict zones, geopolitics, and Turkey's neighbors” were examined with the SOE for 4th grade social studies students with the purposeful sampling method. A total of 561 response concepts were generated to these ten key concepts. In particular, while the answer concept was primarily produced for the geographical necessity dominance theory, the problematic region, and the conflict region key concepts, the least answer concept was produced for the fundamental idea

of Turkey's Neighbors. When the words associated by the pre-service teachers with these concepts are examined, they often make associations with the difficulty of geography and the expansion of the dominant areas of the states in response to this difficulty.

A total of 44 answer concepts related to the keyword political geography were produced. Fourteen of the sentences made by pre-service social studies teachers regarding the concept of political geography are scientific, and 12 are non-scientific or superficial sentences. However, geography, especially political geography, is considered essential in social studies courses. In this context, teacher candidates are expected to have the competence and knowledge to make scientifically based sentences about the concept of political geography.

A total of 73 answer concepts were generated regarding the keyword geographical necessity. Ten of the sentences made by social studies teacher candidates regarding the idea of geographical necessity are scientific, and 16 are non-scientific or superficial sentences. In this direction, pre-service teachers cannot correctly evaluate the concept of geographical necessity.

A total of 70 answer concepts were produced for the dominance theory keyword. Eighteen of the sentences made by social studies teacher candidates regarding dominance theory are scientific, 10 of which contain non-scientific or superficial information. Considering the number of concepts produced by teacher candidates, it is said that their level of readiness is high, and they have sufficient knowledge about the theory of dominance, which has an essential place in political geography.

A total of 52 answer concepts were generated regarding the continental shelf keyword. Nineteen of the sentences made by social studies teacher candidates about continental shelf are scientific, and seven are non-scientific or superficial. The continental shelf, an essential geographical concept, is associated with the dominance of states in the seas. Among the critical disputes between Turkey and Greece is the continental shelf. In this context, it is common for pre-service teachers to produce different concepts and mainly scientific sentences because this subject has an essential place in both social studies and various disciplines and media.

A total of 68 answer concepts were produced for the problem area keyword. In the word association test, it was determined that the pre-service teachers associated the word with the concept of the problem area the most in the determined cut-off point range. When the problem area was mentioned, the expression conflict often came to mind. The frequent agenda

of political problems arising from the frequent border problems around the world in recent years is influential in the cognitive structures of teacher candidates. On the other hand, pre-service teachers often associated words with the concepts of continental shelf, geographical necessity, continental shelf, and form of management. In addition, 13 of the sentences made by social studies teacher candidates regarding the concept of problem area are scientific, and 12 are non-scientific or superficial sentences. It has also been determined that there needs to be more clarity about this crucial concept.

A total of 44 answer concepts were produced regarding the management style keyword. 20 of the sentences made by social studies teacher candidates regarding management style are scientific, and 6 are non-scientific or superficial sentences. The fact that the rulings made by the teacher candidates for the relevant concept are predominantly scientific is based on the candidates' high prior knowledge and experience about the current concept. As a matter of fact, when the courses in the social studies undergraduate program are examined, it is seen that they have content for the relevant concept.

A total of 63 answer concepts were produced for the keyword of power struggles between nations. Twenty-two of the sentences made by pre-service social studies teachers about the idea of international power struggles are scientific, and 4 are non-scientific or superficial sentences. The richness of the concepts produced by the pre-service teachers regarding the idea of power struggles between nations and the abundance of scientific sentences can be explained by both the undergraduate program in which they are educated and the fact that Turkey takes an active role in the power struggles between the countries of the world and that this issue is constantly kept warm and reported through the media. This created awareness of the relevant concept in pre-service teachers.

A total of 64 response concepts were produced for the keyword conflict zones. Seventeen of the sentences made by pre-service social studies teachers regarding the idea of conflict zones are scientific, and 9 are non-scientific or superficial sentences.

A total of 55 response concepts related to the keyword geopolitics were produced. Fifteen of the sentences made by pre-service social studies teachers about geopolitics are scientific, and 9 are non-scientific or superficial sentences. It has also been determined that there is a misconception. In the survey conducted by Ünal & Er (2017), it was determined that the concept of geopolitics is a difficult concept to teach in the social studies lessons of social studies teacher candidates. Geopolitics is a comprehensive concept that includes world

politics, world domination, and military strategy in general. Pre-service teachers can make a conceptual error while evaluating the relevant concept in this context.

Twenty-eight answer concepts were produced for the keyword Turkey's neighbors. It has been determined that pre-service teachers mainly associate words with the names of countries related to Turkey's neighbors. In addition, in the sentences they wrote, it was seen how many countries this situation bordered and that it was mainly scientific information. Yılmaz & Yiğit (2010) emphasize that pre-service social studies teachers should have sufficient knowledge about Turkey's neighbors, away from prejudice, and the ability to evaluate the relations between these countries and Turkey from different perspectives. Tunçel (2002), on the other hand, stated in his study that students did not have information about the neighboring countries of Turkey. In addition, 13 of the sentences made by pre-service teachers about the concept of Turkey's neighbors are scientific, and three are non-scientific or contain a superficial interest. Apart from this, it has been revealed that teacher candidates have misconceptions in different studies (Doğru, 2021; Doğru & Özsevgeç, 2023)

When the words associated with the pre-service teachers were examined, it was determined that they frequently emphasized the words related to geographical elements (sea, landforms, etc.) and the necessity of states to have power (domination theory, war, weapons, etc.).

It has been determined that a significant part of the sentences made by the pre-service teachers in the word association test are sentences with scientific content, and the number of sentences containing non-scientific or superficial information and sentences with misconceptions is relatively few. Similarly, Demirkaya, Köç, & Ünal, (2020) found in their study that social studies teacher candidates generally have a scientific qualification. In general, the number of scientific and non-scientific sentences about the concept is close to each other when viewed from the concept perspective. In this case, the cognitive structures of the teacher candidates should be developed about the subject. In addition, when the breakpoint intervals are considered, it is possible to say that there is an increase in the words associated with the pre-service teachers as the breakpoint interval decreases. In this case, the cognitive structures of the teacher candidates on the subject are limited.

Recommendations

Since there are a limited number of studies related to the research, research carried out with different working groups and designed with different methods can be carried out to deal with the subject in depth. In addition, similar studies on different concepts can be carried out apart from those examined in the current study. Social studies teacher candidates can be trained to improve their cognitive levels related to the subject.

Compliance with Ethical Standard

The ethical review was carried out by = Kastamonu University Social and Human Sciences Research Ethics Committee.

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