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A study on how environmental issues are discussed in social studies textbooks

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Abstract
Environmental education should be sustainable. For a peaceful and happy world, each country is expected to see the environment as common heritage and to bring this sensitivity to the students in the education processes. Social Studies course is a course that aims to educate students to be effective, sensitive to living together, and have a perception of common heritage within the framework of global citizenship. For the environmental sensitivity to be more effective, the education process is bound to carry out very important tasks. Students can be supported to gain awareness of environment through educational programs, textbooks, teaching strategies, methods, and techniques from an early age on and throughout their education. The aim of this study is to investigate what kind of educational process the students in Turkey, which has an important geopolitical position in the world, go through in the social studies course, which bears the responsibility of conveying universal principles. In our study, the mixed method was used and it was investigated whether the environmental issues are discussed in social studies textbooks in accordance with the developmental levels of the students. In the research process, teachers' opinions as well as the textbooks were examined. As a result of the research, it has been understood that social studies textbooks do not primarily handle the environmental issues efficiently and that children are not trained well enough to gain environmental sensitivity.

Keywords Education · Environmental education · Social studies · Textbook · Development periods

1 Introduction

The social studies course, which arose with the aim of educating students to be responsible and sensitive citizens to what happens around them and supporting the development of the intuition of living together based on the respect for differences, has considered it as a mission to provide students with an understanding of world citizenship. The social studies course aims to equip students with a sensitivity to issues with the understanding of world

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citizenship. This is one of the reason why social studies emerged. Turkey is a state that has signed global agreements on the nature and environment, just as it is the case in many other issues, he feels committed to taking steps in line with global environmental awareness in every field from education to health, and industry to agriculture. As per the commitment made, significant steps were taken in education in order for the students to gain environmental sensitivity from an early age on, and studies were held years ago. In the course of this program, the task of greatest importance was delegated to the social studies course, through which a high level of world citizenship sensitivity on universal issues was meant to gain. For this reason, as was emphasized by some researchers (Doğanay, 2002), social studies is an important course that examines the interaction of people with their environment in a local context as well as a global one in regards to space and time. Accordingly, the preparation of all course materials, especially textbooks, within the framework of all that has been mentioned above, is bound to certain rules.

The social studies course undertakes the responsibility of helping citizens to be good at what they do in an effective way and providing them with basic and general knowledge that makes it possible for them to be well aware of their environment and homeland and solve the social problems they face. Social studies course pioneers among the other courses thanks to a basic function. For this purpose, it is crucial to hold social studies programs in accordance with the conditions of its time to prepare the individual for life and meet their needs (Şahin, 2010). When the Social Studies Syllabus (MNE, 2018) is examined, considering the current scientific knowledge and experience on the multi-dimensional developmental characteristics of human beings, a harmonic approach is seen to be taken into account to make sure that all components are precisely aligned and adopted.

As stated by Aslan et al. (2015), it is imperative that all elements, from the visuals given in the textbooks to the evaluation questions, are presented in accordance with the developmental levels of the student, which otherwise makes vigorous learning impossible. According to Kızılçaoğlu (2003), textbooks still maintain their importance in the classroom today, and most of the teachers carry out their in-class activities in line with that. Thus, it is important to prepare the textbooks in line with the developmental levels of the students to usher the way to a safe, practical and effective learning.

1.1 Environmental education and environmental literacy

Topics in Geography, which try to best explain the relations between natural sciences and humanistic disciplines, mutual interaction and all the spatial patterns that emerge as a result, have an important role in the teaching of social studies. In some studies (Ünal, 2012), there are data that meaningful learning is provided in student practices based on the teaching principles of cognitive theories and that is applicable in geographical studies. Environmental education is one of them.

Environmental education is considered to be a permanent process in which individuals and the community gain awareness of sustainable development and the determination to take action to solve current and future environmental problems individually thanks to knowledge, values, skills and experiences (Doğan, 1997). Environmental education is seen as an indispensable tool for the elimination of problems that could cause the end of the world. Through this training, it is aimed that individuals learn to be environmentally conscious. While environmental education aims to convey qualitative information to individuals, it also aims to turn positive attitudes towards the environment into behavior (Erten, 2004). For this reason, the significance of environmental literacy is not to be overlooked.

According to McBride et al. (2013), the term environmental literacy was first used in an issue of the Massachusetts Audubon by Roth (1968) who inquired "how shall we know the environmentally literate citizen?" (Klein et al., 2021). Roth (1968) repeatedly included the term *"citizen"* in his description of the attributes of an environmentally literate person, which is a citizen actively engaged with the communities—a member of the polity. He described an environmentally literate citizen as someone who would act responsibly, "rejecting short term gains when they threaten long range benefits"; take action by "supporting organized conservation efforts with time and/or money"; support needed legislation; ask informed questions, expressing their opinions; and stimulate and/or participate in group action while also encouraging others to "identify and take action on environmental issues" The citizens described by Roth were clearly not mere spectators in their communities (McClaren, 2019). The same issues on this subject are emphasized in different sources (Wilks, 2010).

Environmentally literate individuals are people who are sensitive to the environment and who is environmentally knowledgeable in addition to be being the one who act in an environmentally positive manner. As human life and the environment are interconnected, the environment is important to humanity. It is important that both of them remain balanced. However, environmental problems increase with urbanization, rapid population growth, developing technology, and industry. These environmental problems have begun to threaten human life. Following these problems, people have started to take individual action or as an organization (Akıllı & Genç, 2015).

With environmental problems occupying global agenda more often, the attitude and awareness of people towards their environment, which is why these problems once arose, have become more questionable. Through an understanding of the importance of developing environmental sensitivity and awareness in solving and reducing environmental problems, the role of environmental education within the scope of sustainability has gained importance (Oğuz et al., 2011). For this reason, as for the decent environmental education, the share of education-training programs and textbooks prepared in keeping this is very high. A textbook to be prepared in accordance with an effective syllabus has criteria that must be met in terms of achievement, visuality, scientificity, and language proficiency. This subject is emphasized by the Board of Education and Discipline of Turkish Ministry of Education in the section "The Draft Textbook and Educational Tools and the Criteria and Explanations to be used as a basis for Evaluation in Examining their Electronic Content" (MNE, 2021).

Middle school students know about climate change in large part through the textbooks they study in their classes. Therefore, it is crucial to understand how the language employed in these materials frames this topic (Román & Busch, 2016).

The practive of the environmental education approach for sustainability requires that environmental education begin with an environmental understanding gained in the family environment and be developed thanks to education given in preschool and other institutions. Since environmental education is the one that appeals to the cognitive, affective and psychomotor abilities of students, while transferring environmental information to individuals, it is expected that they develop liking for the sensitivity to the environment itself, in the aftermath of which the attitudes eventually turn into behavior (Öztürk & Öztürk, 2016).

The process of transforming what a person has learned into behaviour involves complexities. Therefore, it is important to define developmental processes of human behaviour considering their developmental stages to determine the strategies accordingly. Wood (1998) states that discussions about the nature of development are mostly related to learning concepts. At this point, Piaget placed the developmental stages of students

on some theoretical foundations. Accordingly, while Piaget compares the learning of knowledge to the process of digesting food (Selçuk et al., 2003), he links the development of the mind to the individual's development and acquisition of knowledge (Günçe, 1973). In this context, taking the nature of social studies into account, it is essential to examine the cognitive and lingual development periods.

Piaget and Vygotsky are considered among the important theorists of developmental psychology. Both theorists have recently formed their theories in different environments and conditions. While the development theory systematized by Piaget is based on cognitive approaches, Vygotsky discusses the development theory within contextual approaches. While Piaget is subjected to significant criticism in terms of his views on cognitive development theory, they also draw a lot of interest (Smith 2002). Looking back in history, the influence of Vygotsky's theory grew stronger after the 1980s, although the theory itself was banned.

There are certain developmental tasks that people must acquire at certain ages. In order to deliver the future of societies to healthy individuals, it is necessary to pay attention to these developmental characteristics in education. In particular, knowing the developmental characteristics of students and developing an appropriate education and training process will yield beneficial results for both students, teachers and society (Aslan et al., 2015). From this perspective, it is clear in the literature what age children should hit for the the concrete operational and abstract operational stages to occur. Therefore, each developmental period has its own behavioral patterns.

Piaget (1983) in his theory of concrete and abstract operational stages, he revealed the following. According to this, the four stages are;

- Ages 0–2 (Sensory-Movement Stage).
- Ages 3–6 (Pre-Procedure Stage).
- Age 7–11 (Concrete Operations Stage).
- 12 and above (Abstract Operations Stage) (Piaget, 1983).

The characteristics of Vygotsky's developmental periods are given below. According to this:

- 0–2 age emotional communication,
- Manipulating 2-year-old objects,
- Role playing and symbolic activities for 3–7 year olds.
- Emphasizing planned and programmed studies at school in the 7–11 age period.
- Integration of relationships and career expansions between the ages of 12–18 (Selçuk et al., 2003).

From this perspective, it is pedagogically important that the environmental issues in the textbooks we examined in our research are given by considering the development periods of a student. Otherwise, it may prevent the achievement of the expected gains in education.

1.2 Cognitive development

Cognitive development is also expressed in the form of changes that occur in mental processes with age. Cognitive activities, in case, include all behavioural processes and

movements related to thinking and knowing. On the other hand, cognitive development examines how these behavioural processes develop in children and young adults and how they get to know the world effectively and efficiently as well as realize their mental development (MNE, 2014). Cognitive development in children is affected by genetic and environmental factors (Demircioğlu & Yabancı, 2003).

Some educators have tried to determine how and why the child sees and perceives the world around her/him at different ages (Kol, 2011). Piaget states that, as a result of the child's mental processing of the objects in the environment and the interaction process with them, development occurs. He underlines that this occurs in four basic stages and that each stage has its own characteristics. He states that, due to individual differences, these changes occurring around the characteristics of each period will occur more rapidly (DeVries, 1997).

There are some basic concepts in Piaget's theory of cognitive development. Clarifying cognitive development, Piaget focuses on schema, harmony, balance, language and concept development, egocentrism, conservation, realism, animism, causality and concepts as such (Bayraktar, 2017). Vygotsky, on the other hand, defends the following in cognitive development theory (Driscoll, 2012; Ormrod, 2018); There is a link between thinking and language in early childhood. Difficult situations faced by children in the process can provide important support for the emergence of their cognitive development at the highest level at the point of proximal development. With the help of the elements such as language, literature, mathematics and art, meaning and values are instructed to children both in formal/informal ways. Support from those above children's level of cognition can help them achieve their goals more precisely. Mental processes begin with social interactions, and development in these processes can occur in both adults and peer groups.

Vygotsky discusses the child in a historical, social and cultural context from the very birth on. The children in context learn from adults or more skilled peers of theirs to use the psychological and technical tools of culture, in other words, they learn how to learn. Language, counting, writing, graphs, maps, and other conventional signs are psychological tools. Physical tools such as computers and calculators are also technical tools. Adults or more skilled peers guide children to progress in the area of convergent development (Miller, 1994).

As Güneş and Güneş (2017) stated, understanding the inner world of students also requires knowing about the contents of their developmental periods. These periods affect all the processes, from their imagination to sensitivity to language. Knowing about all that the children need and understanding their cognitive stages might have an effect on the decisions to be taken in everything related to them, as well as the arrangements to be made in education. For this reason, it is important to analyze what affects their behaviour well before making decisions about children.

With the textbook being in the first place, the materials used in the education-teaching processes for the students should be prepared in line with their levels. Thus, organizing educational activities with materials suitable for children of all ages is important for cognitive development processes of students. It will not be convenient to have a child who is not cognitively mature enough read a book that requires absolute maturity. Apart from individual examples such as the presence of children in an age group above their own age, taking age groups as a criterion in the selection of books is a basic requirement for these reasons (Güneş & Güneş, 2017).

1.3 Language development

The acquisition of language is based on the cognitive development of the child, and each of the mental adaptation processes is closely related to perception, concept development and acquisition of language. Along with thinking, language also includes cognitive processes, such as memory, reasoning, problem solving and planning. Since language is a development area related to both equipment and acquisition, there is a lot of innate equipment related to language. It is stated that language unites in physiological, psychological and cognitive fields (Demirkan Baytar, 2014).

Chomsky, one of the linguists who left his mark on the twentieth century, states that language is unique to humans from the point of view of a Cartesian and based on the one that there can be no language ability without thinking. He judges that thinking is only in humans (Demirkan Baytar, 2014). Considering language as individual-society, ability-use, active–passive shows that there are common and universal characteristics as well as differences that occur with the effect of various factors during speech. One of these common features is the communication function of language (Yapıcı, 2004). The language development process of the child is in parallel with the psycho-motor development process. The physical development of the child forms the basis of her mental and language development. Harmonizing the language development stages of a child accelerates her language development (Temizyürek, 2007).

There are different views on how language development occurs. Social interaction theory, which is an advanced dimension of the behaviourist approach, directly links language acquisition with imitation and modelling. In this theory, it is emphasized that language learning is influenced by the social and cultural environment (Öztürk Dağabakan and Dağabakan 2007). Social interaction theory defines language development as a sequential, orderly, complex but interactive system and indicates that the child learns a language through interactions with his environment. According to this theory, social interaction affects language development and the affected language continues to develop with a developed social interaction (Çoban Söylemez, 2016).

Along with thinking, language also includes cognitive processes, such as memory, reasoning, problem solving and planning. At the same time, it is inevitable especially for the social lives of people (Ergin, 2012). According to Senemoğlu (2002), there is a parallelism between language development and cognitive development, and they have a completely intertwined area of development. A problem in one has an effect on other areas of development. Therefore, all areas of development are interrelated..

Defending cognitive theory thereby stressing the importance of mental development in language learning, Piaget opposes Chomsky's views on this issue. Cognitive view defends the effect and importance of cognitive understanding in the language development process by pointing out the shortcomings of Chomsky's ding-dong theory. With the emphasis on this subject, cognitive theory is at the midpoint of the theory maintained by Chomsky and the behaviorist theory that argues for the influence of the environment on development. According to the cognitive theory asserted by Piaget, language provides the opportunity for the child to both describe his experiences and reconstruct them, making connections with the past. Therefore, the child has a set of intuitions about his experiences yet to be realized, taking the behavior in the past into account. However, in this process, the child gives up performing some behavior and replaces with only words and uses language (Piaget, 2000).

2 Method

2.1 Purpose and importance of the research

Students can be supported to gain awareness of environment through educational programs, textbooks, teaching strategies, methods, and techniques from an early age on and throughout their education processes. For this sensitivity to be permanent, it is important that the educational tools be sufficient and that the learning environment is suitable for the developmental levels of the students. To be a peaceful and happy world citizen, each country is expected to see the environment as common heritage and to bring this sensitivity to its students in the education processes. Social Studies course is a course that aims to educate students to be effective, sensitive to living together, and to have a perception of common heritage within the framework of what it means to be a world citizen.

The aim of this study is to investigate what kind of educational process students go through in the social studies course, which undertakes the task of conveying universal principles in Turkey, located in a geopolitically significant region in the world. For this purpose, the environmental topics and materials in the textbooks, which are to be prepared in consideration of the developmental stages of the students, are presented and their status of adequacy is examined.

This study was conducted with 4th grade class teachers who teach social studies and 5th grade social studies teachers. Forty-eight primary schools (for the 4th grade social studies course) and 56 secondary schools (for the 5th grade social studies course) participated in the research (Table 1).

With this study, it is aimed to investigate whether the environmental elements given in the primary school (4th-grade) and secondary school (5th-grade) social studies textbooks of the Ministry of National Education of Turkey are prepared in line with the developmental stages of the students. One of the most important reasons for taking this aspect of the textbook within the scope of the research into account is that the content of social studies includes diversity in terms of environmental education. This is because special emphasis is placed on this in the section "*Cases to be Considered in the Implementation of the Social Studies Syllabus*" of the 2018 Turkey Social Studies Curriculum. Therefore, it is important to investigate to what extent these elements are included in the social studies textbook in the case of literature. In addition, it was investigated to what extent the cognitive and language development levels of the students were born in mınd during the presentation of these environmental elements in the textbook.

In our study, the reason for investigating how environmental issues are discussed cognitively in the textbook is that students are expected to develop different behavior in the abstract and concere operational stages. Hence, the materials to be presented to children who exhibit different behavior in different stages should be arranged by taking their developmental levels into consideration. In addition, presenting what is given in the textbook in a specific conceptual framework and systematically supporting this in the syllabus have made it necessary to investigate how environmental issues are approached in compliance with the language development

Table 1 Social studies teachers involved in the research process

	Number of participating teachers	
Social studies teachers	4th class	5th class
	48 teachers	56 teachers

levels of the students. Besides, according to the literature, the measures to be taken and the strategies to be followed according to the cognitive development periods of students are also important. According to Kol (2011), one of the most important processes of cognitive development is language development. In our research, the language development processes of the students were examined along with their cognitive development processes as language development occurs during the stage when cognitive development continues (Bacanlı, 2002; Senemoglu, 2007). Therefore, in our study, it was investigated whether the environmental elements described in the social studies textbooks were discussed presented with reference to the cognitive and language development levels of the students. In our research, answers to the following questions were sought;

1. Are the environmental materials in the primary school (4th grade) and middle school (5th grade) Social Studies textbooks treated in accordance with the cognitive development levels of the students?
2. What is the pedagogical competence if the environmental materials in the primary school 4th grade and middle school 5th-grade Social Studies textbooks are discussed in line with the cognitive development levels of the students?
3. Are the environmental materials in the primary school 4th and middle school 5th-grade Social Studies textbooks discussed in accordance with the language development levels of the students?
4. What is the pedagogical competence if the environmental materials in the primary school 4th and middle school 5th-grade Social Studies textbooks are treated in line with the language development levels of the students?
5. What is the pedagogical competence if the environmental materials in the primary school 4th and middle school 5th-grade Social Studies textbooks are discussed in accordance with the cognitive development levels of the students?

2.2 Research model

In our study, the mixed method was used. To investigate whether the environmental education items discussed in the primary school 4th grade and secondary school 5th grade social studies textbooks are prepared with regard to the cognitive and language development levels of the students, the pattern of this study, a general scanning model, is formed. The general scanning model is the name given to the scanning arrangements made on the population or a group of samples or sample groups to be selected out of residents in areas in order to come up with a general judgment about the universe with the population consisting of a large number of people (Karasar, 2012; Yıldırım & Şimşek, 2013). In our study, mixed method was used and it was investigated whether the environmental issues are discussed in social studies textbooks in accordance with the developmental levels of the students. With the development and acceptance of the use of qualitative and quantitative researches together in social and human sciences, mixed method researches combining these two types of data collection have become popular (Baki & Gökçek, 2012). The mixed method approach is a research methodology itself. According to Poth and Munce (2020); mixing two methods might be superior to a single method as it is likely to provide rich insights into the research phenomena that cannot be fully understood by using only qualitative or quantitative methods. A mixed-methods design can integrate and synergize multiple data sources which can assist to study complex problems (Dawadi et al., 2021).

2.3 Data collection tools

In this study, the data were obtained by the questionnaire and document analysis method. Questionnaire is a data collection tool formed by bringing various questions together to determine the demographic characteristics and preferences of individuals or to gather information about a subject, situation, event or to determine the opinions of individuals. A questionnaire is one of the most preferred data collection tools when it is demanded that the opinions of people on a research topic in education be determined. A questionnaire can be expressed as a data collection tool used to determine the ideas of the people who make up a universe or sample in a short time and in a systematic way in order to seek answers to the questions about a subject. In a questionnaire, written questions are asked in order to have a clear idea of the thoughts of the individuals and an answer to the question in research is sought based on the answers given by the individuals to these questions (Metin, 2014).

Document analysis includes the processes of finding, reading, taking notes and evaluating resources for a specific purpose (Karasar, 2012). In addition, document analysis requires the examination and interpretation of data in order to make sure that they make sense, lead to an understanding about the subject, and develop empirical knowledge (Corbin & Strauss, 2008). Document analysis is collecting, reviewing, querying and analyzing various forms of written text as a primary research data source (O'Leary, 2017).

Ethics committee approval was obtained for the research. Approval was given by the Ethics Committee of Yıldız Technical University, Istanbul.

2.4 Analysis of data

The textbook has been examined both textually and visually. While the texts and information were evaluated within the scope of Bloom's revised taxonomy, the visuals were examined within the framework of systematized functions (decorative function, informative function, motivational function, reflection function and exemplification function). According to the stated above; the way images, topics and concepts are presented in the textbook should be appropriate for the level of the student. This is essential for the quality of the education. As stated in some resources (Atasayar, 2008), it is important for further learning that the given topics are conveyed to students through one of the steps of understanding, comprehension, perception and thinking. Therefore, it is necessary to pay attention to the standards in the process of the acquisition of the subjects by the students. In addition, various sources (Aghajanian & Gallager, 1975; Watkins & Slocum, 2003) point out the importance of considering the developmental stages of students in the process of teaching subjects and concepts. Concept teaching consists of four steps in children; verbal expression of knowledge about the concept, describing the concept, expressing the common/different features of the concepts, and easily recognizing and verbalizing concepts similar to the one learned. The concepts stated in our research were examined in terms of language development processes in accordance with the criteria above.

There are some standards in the visual aspect of the textbook as well. In the sub-title of "Visual and Written Elements" of "Visual design and content design support learning and are suitable for students' developmental characteristics" section of the "Criteria and Explanations to be Used as a Basis for Evaluation in the Analysis of the Draft Textbook and Educational Tools and their E-Content", "the visuals and the elements that make up

the visual must be suitable for the level of student development" is included. In this framework, the Board of Education and Discipline, a part of the Ministry of Education (2021) has put forward the following criteria for the visual dimension of the textbooks;

- The content should be enriched with a variety of visuals that will support learning, serve the purpose and form integrity with the text.
- Depending on the nature of the subject, visual elements (tables, diagrams, graphics, photographs, concept maps, mind maps, infographics, etc.) that will facilitate understanding and interpretation and support verbal/written elements should be included.
- In the selection of images, the principle of "from the nearest to the farthest" should be deemed important, and examples of our country, if any, should be given in priority, depending on the content of the subject.

Therefore, it is a legal obligation to have these criteria in a textbook, which should be prepared for the quality education process of the students. However, according to some studies (Oğuzoğlu, 2003), it has been stated that the only function of textbooks is not to convey information, but they should also be able to draw the students' attention. According to these resources; it is also stated that the visual dimension precedes the texts in the textbooks. This refers to the fact that there are some functions of visuality in textbooks such as decorative function, informative function, motivational function, reflection function and the function of exemplification. With the literature being examined (Carney & Levin, 2002; Elia & Philippou, 2004), it is seen that the decorative and informative aspects of the textbooks are referred more in number and this aspect stands out in the preparation of the textbooks. Therefore, the textbooks were examined within the framework of these standards. Accordingly, decorative elements have a purely decorative purpose rather than providing information on the solution to the problem. According to some studies (Clark & Lyons, 2010) pointing out the importance of visuals used as a tool to attain learning goals, decorative visuals are prepared with aesthetic concerns and aim to ensure more motivation. However, the informative function of visualization is that it provides the necessary information to solve a problem. According to the studies on this subject (Elia & Philippou, 2004), the problem solving process is based on a visual in terms of the necessary element. Informative visuals assume the task of conveying information about a concept or a topic by emphasizing their similarities. These types of visuals help students combine new information with the old one. One of the important aspects of informative visuals is to make the necessary evaluations, considering the explanatory side of the text (Araz, 2010).Therefore, the textbooks in our research were examined in accordance with the standards and criteria specified here.

In addition, what is discussed about the environment in the textbook is also examined in accordane with Bloom's Cognitive Field theory. High-level thinking skills and sub-steps that make up Bloom's cognitive domain are seen as a necessity of the information age. The most valuable and concise reference to Bloom's study is that the way each individual learnings level and the level they do it at are different, and this difference will boost the quality of education (Cangüven, 2019). Bloom's original cognitive domain classification was revised in 2001 by two of his students, David R. Krathwohl and Lorin W. Anderson, who followed his path (Tutkun et al., 2012). According to Anderson et al. (2018); when the Bloom taxonomy was first brought forward, it consisted of 6 levels: Knowledge, Comprehension, Application, Analysis, Synthesis and Evaluation. In taxonomy, as sub-cognitive levels, knowledge, comprehension, application; analysis, synthesis and evaluation steps were determined as the upper levels. By the 1990s, there had been a great deal of changes

in the world, developments in the scientific field, especially in the field of education, etc. Many a thing led to changes in the needs/targets in education. All these changes and developments caused the Bloom's taxonomy, which was prepared in accordance with the educational realities and goals of the 1950s, to lack sufficiency in today's world. This inadequacy has paved the way for to the need to combine contemporary knowledge about developmental and learning psychology, teaching methods and techniques, assessment and evaluation with this taxonomy (Topçu, 2017). Bloom's revised cognitive process dimension was systematized as remembering, understanding, applying, analysing, evaluating and creating (Krathwohl, 2002). Brief descriptions of these taxonomic processes are as follows;

Recalling: refers to a state of reminiscence; identifying and recalling information about the subject from long-term memory.
Comprehension: refers to making sense in verbal, written and figural ways by means of exemplifying, interpreting, classifying, summarizing, inferring, comparing and explaining.
Execution: refers to the process of performing or bringing about an action by doing or experiencing.
Analyzing: refers to the process of differentiating, systematizing and integrating each piece through the deductive method based on a context.
Evaluation: refers to making inferences within the framework of criteria and principles through review and criticism processes.
Discovering: putting elements together to make up a coherent and functional whole; through processes of formation, planning and production; reorganizing items as per a new order or structure (Forehand, 2005).

The materials given in the 4th and 5th grade social studies textbooks were evaluated within the scope of Bloom's revised taxonomy above.

3 Findings

While the expression "*While this learning area is being studied, it should be ensured that students acquire skills such as perceiving the space with the value of sensitivity to the natural environment, using maps, location analysis, drawing and interpreting tables, graphics, diagrams*" (MNE, 2018) is included in the "People, Places and Environments" learning area of the 4th-grade social studies syllabus, likewise, in the same learning area of the 5th-grade social studies syllabus, it is emphasized that "*while teaching this area of learning, values such as sensitivity to the natural environment and solidarity, as well as skills such as map literacy, environmental literacy and observation should be acquired by students* (MNE, 2018)". Thus, according to the program, for a student in the concrete operational stage of the 4th and 5th grades to be environmentally literate, the student is expected to gain skills such as perceiving the space, using maps, location analysis, drawing, and interpreting tables, graphics, diagrams.

A study was conducted with 4th grade class teachers who teach social studies and 5th grade social studies teachers. The Table 2 of the research is given below.

A study was conducted with 4th grade class teachers who teach social studies and 5th grade social studies teachers. In the study on 4th and 5th grade social studies textbooks, the teachers were asked the question ``To what extent "the environmental elements given

in the textbook cover the objectives of the program?". According to this; 43.7 percent of the teachers pointed out that the 4th grade textbooks were insufficient in this regard while the 44.6 percent did for the 5th grade textbooks. The teachers were also asked about "the appropriateness of the environmental elements given in the textbook with the objectives of the curriculum " and 52.0 percent of the teachers stated that the 4th grade textbooks were insufficient and so did 35.7 percent of them for the 5th grade textbooks. In the following questions, the teachers were asked about the appropriateness of the materials given in the textbook for the developmental stages of the students. According to this; When "the appropriateness of the materials about the environment for the cognitive development levels of the students" was asked, 56.2 percent of the teachers remarked "inadequate" on the 4th grade social studies textbooks, while 44.6 considered the 5th grade textbooks "quite inadequate". With this; When "the appropriateness of the materials about the environment for the lingual developmental stages of the students" was asked, 43.7 percent of the teachers replied "insufficient" for the 4th grade social studies textbooks and 42.9 percent stated that the 5th grade textbooks were "rather inadequate". In addition, when teachers were asked about the "conformity of the visual materials of the environmental subjects to the cognitive developmental stages of the students" in the social studies textbooks for 4th graders, 45.8 percent of the teachers replied "insufficient" while 48.2 percent claimed them to be “insufficient”. Besides, when the same teachers were asked "the appropriateness of the visual materials of the environmental subject for the lingual developmental stages of the students", 47.9 percent of the teachers said that the content of the 4th grade books were “insufficient” while 50 percent referred to the same thing for the 5th grade books. According to the answers given by the teachers; it has been understood that environmental issues are studied "insufficiently" or "very inadequately" in 4th and 5th grade social studies textbooks. There may be various reasons for which we can find examining the materials excerpted from the textbooks. Elements from social studies textbooks are given below.

In Fig. 1, environmental materials from the 4th-grade social studies textbook are included. Accordingly, it is seen that the concepts of direction are given in an abstract manner to the 10-year-old child at this grade, who is in the concrete operational stage. In fact, the child is asked to move in a direction, through guidance, s/he is asked: "to which way should s/he go- north, south, east and west". The child is asked to find them, but it can be said that the given ones are not cognitively appropriate for a child in this category of age. Because, pedagogically, clues are not given to the child, and the question asked bears an abstract quality. Besides, there is no legend of the directions north and south in the image given in the relevant section of the textbook. This can be considered a scientific deficiency. The legend mentioned when assessing the deficiency criterion is an indispensable element of the map (Kara et al., 2018).

The environmental elements given in the social studies textbook were examined in accordance with the developmental stages of the students. According to this, in the social studies textbook, the visuals of “home, school, football field and buffet” are mainly described within the framework of the informative function. In these elements of informative function, the images are depicted with the subject and concepts. With this, the decorative functional aspect of the given visuals has also been examined, but it has been understood that they are insufficient. In addition, as in the example of Fig. 1, it is seen that the assessment questions given in the fill-in-the-blank style in the textbook are presented following the "understanding" level of the Bloom’s Taxonomy Cognitive Process Dimension. It can be said that this approach is maintained throughout the course book, and the questions prepared in regard to the principles of measurement and assessment related to the

Table 2 Teachers' opinions on the appropriateness of environment elements discussed in the 4th and 5th grade social studies textbook

Appropriateness of the given materials in the textbook	Class		Very inefficient	Inefficient	Moderate	Good	Very good	Total	$\bar{x}$
Compliance of the given materials with the aims of the program	4	f	12	21	5	8	2	48	3.09
		%	25.0	43.7	10.4	16.7	4.2	100	
	5	f	21	25	4	2	4	56	2.91
		%	37.4	44.6	7.2	3.6	7.2	100	
Conformity of the Given Materials to the Achievements of the Program	4	f	9	25	8	3	3	48	2.98
		%	18.7	52.0	16.7	6.3	6.3	100	
	5	f	18	20	8	5	5	56	3.01
		%	32.1	35.7	14.4	8.9	8.9	100	
Conformity of the given materials to the Cognitive Development Levels of the Students	4	f	14	27	3	2	2	48	3.14
		%	29.1	56.2	6.3	4.2	4.2	100	
	5	f	25	19	7	2	3	56	3.13
		%	44.6	33.9	12.5	3.6	5.4	100	
Conformity of the given materials to the Language Development Levels of the Students	4	f	18	21	5	2	2	48	3.01
		%	37.5	43.7	10.4	4.2	4.2	100	
	5	f	24	21	7	2	2	56	2.77
		%	42.9	37.4	12.5	3.6	3.6	100	
The suitability of the given visual materials for the cognitive development levels of the students	4	f	15	22	6	3	2	48	3.26
		%	31.2	45.8	12.5	6.3	4.2	100	
	5	f	27	21	4	1	3	56	3.09
		%	48.2	37.4	7.2	1.8	5.4	100	
The suitability of the given visual materials for the language development levels of the students	4	f	19	23	3	1	2	48	3.19
		%	39.5	47.9	6.3	2.1	4.2	100	
	5	f	22	28	4	1	1	56	2.88
		%	39,3	50,0	7,2	1,8	1,8	100	

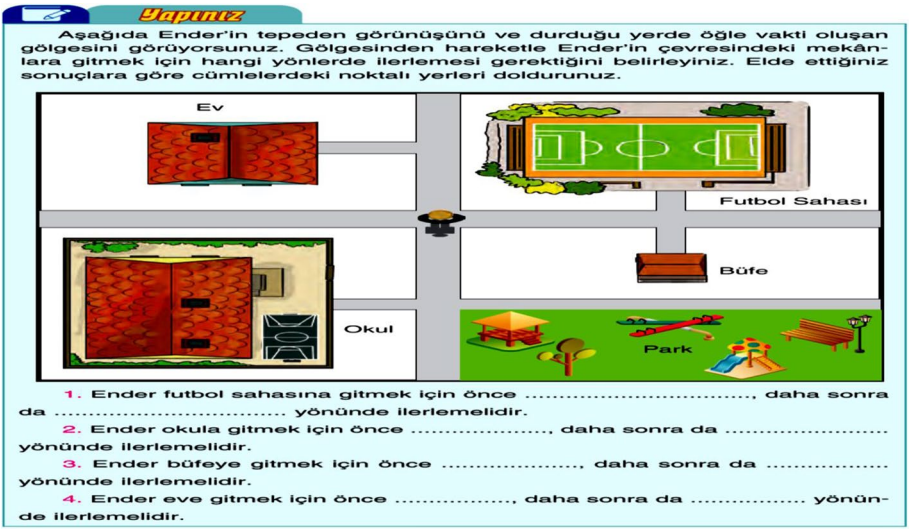


Fig. 1 A sample image for examining whether the visual and taxonomic dimensions of the materials in the 4th grade social studies textbook are given in accordance with the developmental stages of the students. **English translation of the Turkish text in the Fig. 1**: Below you can see Ender's view from above and his shadow formed at noon where he stood. Based on where his shadow is cast, determine the direction Ender should move to in order to go to the places around him. Fill in the blanks in the sentences below in accordance with what you have come up with. (1) In order for Ender to go to the football field, he should first move to ……and then to ……., (2) In order for Ender to go to school, he should first move to …… and then to ……., (3) In order for Ender to go to the grocery, he should first move to …… and then to ……., (4) In order for Ender to go home, he should first move to …… and then to …….

environment are given in the category of "summarizing, deduction and comparison" of the "understanding" level.

In any case, most of the theoretical knowledge about language development in children has been shaped by studies aiming to examine the role of language, thought and socialization in a child's life. Each of the theories shaped by knowledge and observations aims to define and relate these three different ways of development to one another. Unlike the theories maintained by Vygotsky, Baldwin, Wallon and Bruner, who see social interaction as the basic aspect of development, stands Piaget's approach, which is representative of the understanding that sees the basic aspect of development as cognitive processes, and neo-Piaget approaches (Temizyürek, 2007). Thus, the language factor, which can affect the way of thinking and socialization processes of children, can also affect the processes of children benefiting from scientific knowledge as it should and transform it into behaviour. The negativities that may occur in the process of acquiring scientific knowledge may also bring along a number of problems. When these problems become permanent, they may harm the children's processes of learning and perception of information, especially during the process of being acquainted with new concepts. As seen in the 4th-grade social studies textbook that we examined in our research, it was understood that the students called the upper part of the textbook north and the lower part south. This case can be shown among the scientific inadequacies of the textbook in terms of language development. However, similar negativities were also emphasized in other studies (Demirkaya et al., 2004). In Fig. 2 taken a 4th-grade social studies textbook, it was found that the concepts of north–south

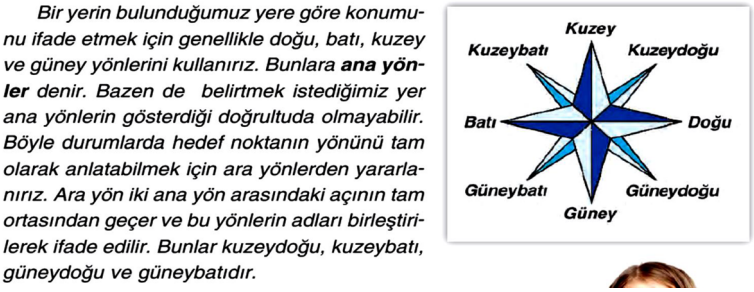


Fig. 2 A sample image for examining whether the visual and taxonomic dimensions of the materials in the 4th grade social studies textbook are given in line with the developmental stages of the students. **English translation of the Turkish text in the Fig. 2**: We often use East, West, North, and South to express the position of a place relative to where we are. These are called the main directions. Sometimes, the place we want to indicate may not be in the direction of the main directions. In such cases, we refer to the intermediate directions to fully describe the direction of the target point. The intermediate direction passes through the middle of the angle between the two cardinal directions, and the names of these directions are expressed by merging these two directions such as Northeast, Northwest, Southeast and Southwest

were also presented as per the reasoning up-down. Thus, according to the studies (Kuzey & Değirmenci, 2019), materials that are not prepared in accordance with the cognitive level of students about directions may also cause misconceptions. It can be said that the information about "Mount Süphan " given in Fig. 3 is not suitable for the language development of children. Rather than the concept of "parable ", it is seen that concept of "story and legend", which is included in the textbook and depicted, is applied. It can be said that such situations may cause conceptual confusion in children in the future. Besides, as the information about Mount Suphan given in this textbook is actually that of Mount Cudi, according to the sources, it can be indicated that it has scientific inadequacies. Along with that, it may be beneficial to present the information given to students in the concrete operational stage in a way that is likely to facilitate their understanding. As seen in Fig. 4, it can be said that what is given is presented in an abstract form. The relation between the "cloud-rain" and one between "cooling-snowfall" were also given in an abstract form to the students during the concrete operational period. This situation may pose problems both in terms of cognitive and language development of children. Because presenting the climatological causes of geographical formations such as "wind", "rain", and "snow" without clearly explaining what they refer to may bring out cognitive deficiencies.

In a child aged 10–11, the concepts of time and place are developed enough to realize some historical and geographical events. The power to think about the future also starts to progress. During this period, the child can gain the power to work, learn and research on his own (Doğan, 2007). But 4th-grade primary school students are at the crossroads of the transition stage from a concrete one to the abstract. Therefore, what is given in the textbooks is expected to be prepared in accordance with the syllabus as well as the cognitive competence status of the students.

When those to be depicted in the concrete operational stage are done in the abstract operational stage the pedagogical inadequacies of the textbook become clear. Regarding the environment, similar situations have been observed throughout the textbook along with the ones given in Fig. 1. Related materials on this subject are given in Figs. 2, 3 and 4. It can be said that in the materials related to the environment given in Figs. 2, 3 and 4, what should be given concretely are given in the abstract form, and these are presented above the


Ülkemizin coğrafi özelliklerini tanımamızda şiirlerin ve türkülerin yanı sıra efsanelerin de önemli katkıları vardır. Aşağıda bunlardan biri olan Süphan Dağı (Görsel 3.5) Efsanesi'ni görüyorsunuz.

Süphan Dağı

Efsaneler kaynağı Van Gölümüzün kuzeybatısında bulunan, 4434 metrelik yüksekliği ve heybetli duruşuyla yurdumuzun yüce dağları arasında yer alan Süphan Dağımızın çok eskiye dayanan bir hikâyesi vardır.

Çevre halkının anlattığına göre bu dağımız adını şu olaydan almıştır:

Nuh peygamberin teknesine aldığı insanlar ve hayvanlar, tufan suları üzerinde günlerce yol aldıktan sonra bir tepeye çarparlar. Hz. Nuh, teknesinin sular altında kalmış olan bu tepeye çarpması üzerine bir an tereddüt eder. Ardından "Allah'ın her türlü kusurdan uzak olduğunu kabul ederim." anlamındaki "Süphanallah" sözünü söyler.

Nuh Aleyhisselâm ve teknesindekiler, suların alçalması ile birlikte geri çekilirler. O günden sonra teknenin çarptığı tepe, Hz. Nuh'un söylediği "Süphanallah" sözünden dolayı "Süphan" adıyla anılır.

Halkın anlattığına göre teknenin bazı parçaları hâlâ dağın tepesinde durmaktadır.(1)

Görsel 3.5: Süphan Dağı'ndan bir görünüm

Efsanede anlatılan olayın geçtiği yerin coğrafi özellikleriyle ilgili olarak hangi çıkarımlarda bulunabilirsiniz?

Ülkemizin farklı yerlerinin coğrafi özelliklerini anlatan edebî ürünlere başka hangi örnekleri verebilirsiniz?

Fig. 3 A sample image for examining whether the visual and taxonomic dimensions of the materials in the 4th grade social studies textbook are given in line with the developmental stages of the students. **English translation of the Turkish text in the Fig. 3**: In addition to poems and folk songs, legends also have important contributions to our understanding of the geographical features of our country. Below is one of them, the Legend of Mount Süphan (Image 3.5). **Suphan Mountain**. Located in the northwest of Lake Van, the source of legends, Mount Süphan, which is among the lofty mountains of our country with its 4434-meter height and majestic stance, has a very old story. According to the local people, this mountain was named after the following event: The people and animals that Prophet Noah let board his boat crashes into a hill after traveling for days over the flood waters. Prophet Noah hesitates for a moment when his ark hits this submerged hill. Then he utters the word "Subhanallah" which means "I accept that Allah is free from all kinds of flaws". Prophet Noah and those in his ark withdrew with the waters lowering. Since that day, the hill that the ark hit has come to be called "Süphan" because of the word "Subhanallah" uttered by Prophet Noah. According to the local people, some parts of the boat are on the top of the mountain. Visual 3.5. A view of Mount Süphan. What inferences can you make about the geographical features of the place where the event described in the legend takes place? What other examples can you give of literary works that describe the geographical features of different parts of our country?

level of the student level. In addition to that, it can be indicated that the way in which environmental issues are discussed throughout the textbook contains scientific inadequacies in cognitive terms.

In addition, the environmental elements given in the textbook were examined in terms of visuality and taxonomy. According to this; it was seen that Figs. 2, 3 and 4 were given within the framework of the informative function. Although the directions in Fig. 2 are given within the framework of the decorative function, it can be said that the informative function predominates. On the other hand, the decorative function of the Fig. 3 is rather insufficient, and it was observed that the informative function is advanced. On the other hand, it can be said that the decorative aspect of the images, in which the "weather forecast" image in Fig. 4 is depicted within the framework of the informative function, remains in the background. With this; It can be said that what is shown in Figs. 2, 3 and 4 is at an "understanding" level according to the Bloom's Taxonomy Cognitive Process Dimension. The understanding step is divided into seven sub-steps as interpretation, exemplification, classification, summarization, inference, comparison and explanation (Anderson et al.,



Fig. 4 A sample image for examining whether the visual and taxonomic dimensions of the materials in the 4th grade social studies textbook are given in line with the developmental stages of the students. **English translation of the Turkish text in the** Fig. 4: In the diagram below, the changes in the weather conditions of a place during two days are described with symbols. Examine the figure and give information about the weather of the place in question based on the order of the symbols. Then, drawing a similar diagram, describe the weather conditions of the last two days of your place of residence

2018). Accordingly, it is seen that what is given in the textbook is presented in a way that covers all categories (interpretation, exemplification, classification, summarizing, inference, comparison, explanation) at the "understanding" level.

The following statements are included in a study of the 5th grade social studies syllabus called "People, Places and Environments": "While this learning area is taught, values such as sensitivity to the natural environment and solidarity as well as skills such as map literacy, environmental literacy and observation should be acquired by students." (MNE, 2018). According to the syllabus, a child in the concrete operational stage at the 5th-grade aims to gain sensitivity to the natural environment as a value., It is seen that this value is presented as a tool for acquiring skills such as map literacy, environmental literacy and observation.

As presented in Figs. 5, 6, 7 and 8 from the social studies textbook prepared by the 5th-grade Commission of Education, it is observed that materials that encourage students to think and question about the environment are included. According to Barth and Demirtaş (1997), at the end of the fifth grade, children's national feelings grow stronger; they adopt their national identity, flag and those who founded the Republic of Turkey. They also add a sense of patriotism to their worldview. As expressed in this image, the message is given that the balance in the nature can be maintained with the attention that should be paid to the environment. It is seen that such messages prevail throughout the textbook (such as pages 81, 84, 120 and 121). A 5th-grade student in Turkey is 11 years old. Students in this age category are those who have just completed the concrete operational stage or are about to do it. According to Piaget, children who are in the concrete operational stage between the ages 7 and 11 (Selçuk et al., 2003) begin to think abstractly after the age 11. According to Decker (2010), children after the age 11 do not need concrete examples much. Children at this stage have certain skills in problem solving and reasoning. During this period, discussing the subjects and materials in line with the concrete operational stage may cause some problems in children at the point of learning. Some of these can be exemplified as unwillingness to learn the subjects, lack of motivation and considering things they learn to be simple. Designing coursework processes for those over 11 on environment with abstract

concepts, texts, and visuals can bring students to more successful levels in terms of analysis, synthesis and evaluation. Furthermore, subjecting 5th-grade students to heavy abstract approaches due to the fact that they have just completed the concrete operational stage may cause pedagogical inefficacies. When we look at what is given in Figs. 5, 6, 7 and 8, it can be said that an abstract-oriented approach is presented above student levels throughout the textbook.

Figures 5, 6, 7 and 8 in the textbook were examined in terms of their visual functions. According to this; it was observed that Figs. 5, 6 and 8 are mainly described from the point of decorative function. Although Fig. 7 is given with the decorative function, it is seen that the informative function prevails. In addition, the information given in the textbook was examined in accordance with the Bloom's Taxonomy Cognitive Process Dimension. According to this; Figs. 5, 6 and 7 along with Fig. 8 were given within the scope of the "understanding step" and it was seen that the images were mentioned in the "interpretation" and "conclusion" category of this step.

According to Fig. 9 from the social studies textbook prepared by the 5th-grade Education Commission, it was observed that the information given about the environment was above the language development stage of the students. Similar complexities were in different parts of the textbook. In the sample visual given as a concept network, it was observed that the main concept was presented with other related concepts and the given concepts were above the language development levels of the students. In line with the studies, the language development process of the child is in parallel with the psycho-motor development process. The physical development of the child forms the basis of his/her mental and lingual development. Acting in harmony with language development stages of a child in education affects her/ his language development in a decent way. Although there are plenty of data on the language development of children, there are some differences arising from their perspectives because the child's language development is primarily argued in terms of medical science, social psychology, or linguistics (Temizyürek, 2007).

According to various studies (Ağca, 2012; Ferrand & Bloom, 1997; Honey, 1997; Lantolf, 2000), it is indicated that the acquisition status of the concepts given in various forms in the educational processes has a direct or indirect connection with the language development levels of the children. The concepts given above the student level in the course materials may also bring some shortages, the major of which can be classified as misconceptions and confusion of concepts, which are considered to the biggest obstacles to learning. In the



Fig. 5 A sample image for examining whether the visual and taxonomic dimensions of the materials in the 5th grade social studies textbook are given in line with the developmental stages of the students



Fig. 6 A sample image for examining whether the visual and taxonomic dimensions of the materials in the 5th grade social studies textbook are given in line with the development levels of the students

case the solutions to these problems aren't developed from an early age on, misconceptions and confusion may become permanent (Schunk, 2011; Zembat, 2010). These may turn out to be failures, and the failures that are taken for granted may threaten the student in the future in environmental education as well as in all levels of education. Likewise, according to the research, if the language ability of the child is not developed much, his academic success and interpersonal communication may not improve (Bağcı Ayrancı, 2018). It is important to sustain environmental education in a way that makes it essential not to underestimate the effects. Some studies (Haktanır, 2007) underline that environmental education is an area that needs to be assessed interdisciplinarily because it includes many subjects and skills such as decision making, values education and communication skills. According to studies (Senemoglu, 2007), the concept acquisition status of children who differ in concrete and abstract stages is also related to their acquisition of vocabulary capacity. Accordingly, the expression of the child who grows up in a broad social environment is smoother, and his vocabulary is richer. When s/he is engaged in social communication, s/he is seen using her/his language. The absence of emotional problems and a peaceful environment affect language development positively (Kol, 2011). Social interaction theory defines language development as a sequential, orderly, complex but interactive system and indicates that the child learns the language through interactions with his environment. According to this theory, social interaction affects language development, and the affected language continues to develop through social interaction (Çoban Söylemez, 2016).

It is seen that the ones given in Fig. 9 are within the framework of the informative function. This image, which is given within the framework of the informative function, can contribute to the merging of the new information acquired by the students with the old one, by which it makes it easier to learn. In addition, it can be said that the aim of the course book is to provide students with the opportunity to acquire new information with these images. With this; It is seen that what is given in Fig. 9 is presented at the level of "understanding" according to the Bloom's Taxonomy Cognitive Process Dimension, and is discussed under the categories of "exampling, classification, summarizing, deducing, comparing".



Fig. 7 A sample image for examining whether the visual and taxonomic dimensions of the materials in the 5th grade social studies textbook are given in line with the developmental stages of the students. *English translation of the Turkish text in the Fig.* 7: While some of the changes occur on their own in the nature, some of them arise from the man influence on the nature. People who prefer to live at a certain place use the natural resources there. In doing so, people sometimes harm the environment and disrupt the natural balance. Environmental problems arise due to the deterioration of the natural balance

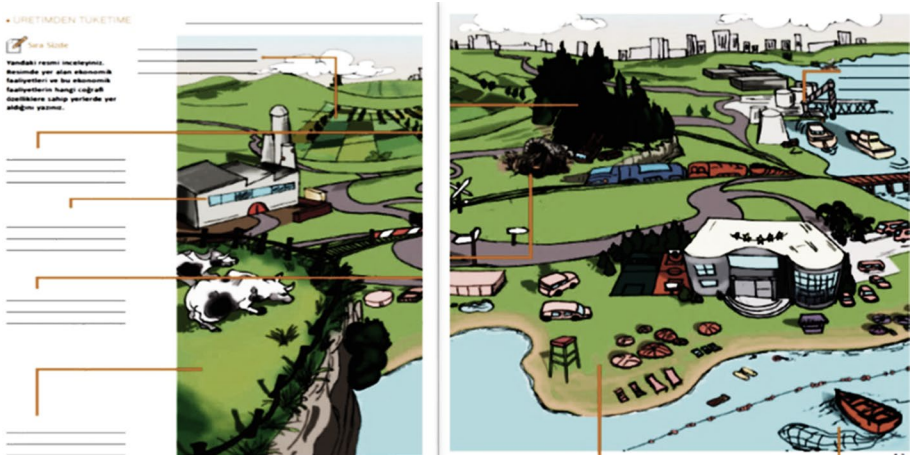


Fig. 8 A sample image for examining whether the visual and taxonomic dimensions of the materials in the 5th grade social studies textbook are given in line with the developmental stages of the students. *English translation of the Turkish text in the Fig.* 8: Look at the picture on the right. Write down the names of the economic activities in the picture and the geographical features where they are done

4 Conclusion and discussion

A study was conducted with 4th grade class teachers who teach social studies and 5th grade social studies teachers. In the study on 4th and 5th grade social studies textbooks, the teachers were asked to what extent "the environmental elements given in the textbook cover the objectives of the program". According to the answers given by the teachers; it has been understood that environmental issues are studied "insufficiently" or "very inadequately" in 4th and 5th grade social studies textbooks. These include the facts that the

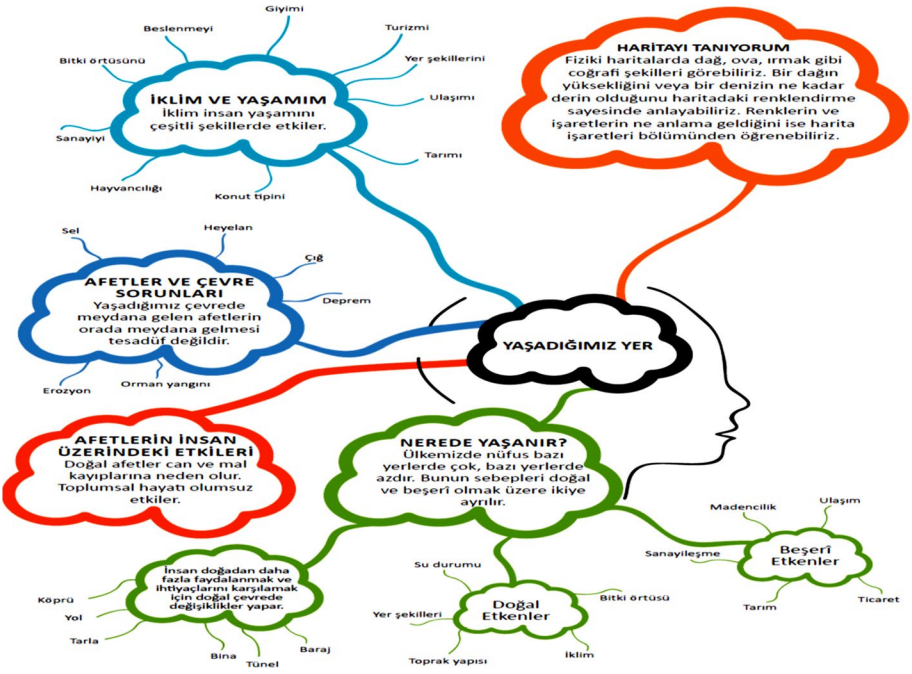


Fig. 9 A sample visual for examining whether the visual and taxonomic dimensions of the materials in the 5th grade social studies textbook are given in line with the developmental stage of the students. **English translation of the Turkish text in the Fig. 9: Climate and my life** Climate affects human life in a number of ways. **Maps and signs on the maps** We can see geographical shapes such as mountains, plains and rivers on physical maps. We can find out the height of a mountain or how deep a sea is thanks to the coloring on the map. We can learn what the colors and signs mean in the "signs on maps" part. **Disasters and environmental problems** The fact that the disasters happen where we live is by no means a coincidence. **The impacts of natural disasters on people's lives** Natural disasters cause loss of life and property. It affects social life in a negative way. **Where we live** While the population is dense in some cities, some others are sparsely populated, the reason for which depends on human activities as well as natural ones. People make changes in the environment to make more use of the nature and meet their needs

textbook has been prepared lacking enough consideration of the main objectives of the program, it has difficulties refurbishing itself, the materials given are not prepared in accordance with the learning styles and individual differences of the students, the global sensitivity to the environment is not fully exercised, and the textbook is not prepared referring to the developmental stages of the students. This situation specifically requires the examination of the textbooks in consideration of the developmental levels of the students.

With this study, it is aimed to investigate whether the environmental elements given in the primary school 4th-grade and secondary school 5th-grade social studies textbooks of the Ministry of Education of Turkey are prepared in line with the developmental levels of the students. As a result of the research, it has been understood that social studies textbooks do not primarily deal with environmental issues efficiently and that children are not knowledgeable enough to gain environmental sensitivity.

Environment-themed images given in the 4th and 5th grade social studies textbooks were examined in consideration of the developmental stages of the students. With this, while the images in the textbooks are mainly described within the framework of the

informative function, it can be said that the images are also given in terms of decorative function. Images used in books, especially in textbooks, have different functions (Carney & Levin, 2002). One of these functions is the informative function. The informative function offers information to find solutions to existing problems (Elia & Philippou, 2004). As the decorative function refers, while decorative pictures do not provide real information for the solution to any problem, representative pictures represent the whole problem or a part of it. There are studies (Baghırlı, 2020; Aslan et al., 2015) revealing that the textbooks, which are among the most important materials of education, have sufficient equipment and quality within the framework of their visual dimension as well as their informative and decorative function. In our research, it can be said that the images given in social studies textbooks bear some inadequacies in the sense of contribution to student learning. In addition, the social studies textbooks (4th and 5th grades) included in our research were also examined within the scope of Bloom's Taxonomy Cognitive Process Dimension. According to this taxonomy, it has been seen that the elements given in the textbook are mostly brought forward in a way to comprise the dimensions of "interpretation, exemplification, classification, summarization, inference, comparison, explanation" of the "understanding" step. Some studies (Beskisiz, 2009; Çalışkan & Yıldız, 2008; Demir, 2015; Topçu, 2017) pointed out the positive contribution of teaching processes carried out within the framework of the revised Bloom Taxonomy Cognitive Process Dimension to student learning.

Environmentally literate individuals are people who are sensitive and have knowledge of the environment and those who act in an environmentally positive manner (Akıllı & Genç, 2015). Therefore, in the curriculum as well as in the literature (Disinger & Roth, 1992; Hepburn, 1974; Jeronen & Kaikkonen, 2002; Manfra et al., 2021; McBride et al., 2013; Rickinson, 2001; Roth, 1968), the concept of the environment has been discussed along with other geographical concepts (geographic environment, geographical space, geographical environment, etc.).

According to the research, primary school 4th-grade social studies textbook was examined, and it can be said that environment-related materials are presented to the child in the concrete operational stage in an abstract form; however, what is given is not cognitively appropriate for a child in this age category and has scientific inadequacies. In line with that, it has been emphasized in various sources (Boom, 2004) that each developmental stage has its own characteristics. As it is stated in these sources that each period includes the achievements of the previous period. In addition, it can be said that a sensitivity appropriate for the cognitive development levels of the students is not followed throughout the textbook. This situation can bring various difficulties along in learning, as well as those in the quality and success of their future learning. There are many studies (Claire & Adie, 2021; Moore et al., 1984; Piaget, 2007; Pinter, 2011) emphasizing this issue.

In any case, most of the theoretical knowledge about language development in children has been shaped by studies aiming to examine the role of language, thought and socialization in the child's life. Each of the theories shaped by knowledge and observations aims to define and relate to these three different ways of development (Temizyürek, 2007). The interactionist theory, like Piaget, argues that language is acquired as a result of the interaction of heredity and environment. Accordingly, language development in children occurs through various stages and is affected by cognitive development (Atay, 2009). The 4th-grade social studies textbook that we reviewed in this study was investigated in terms of language development levels of the students, and it was found out that there were significant deficiencies relatedly. For example, in a visual in which the concepts of north–south are depicted in accordance with the logic that requires arrows (up-down), the concept of "story and legend" is used instead of the concept of "parable", and some others are

presented in an abstract form, it was observed that examples such as the relation between "cloud-rain" and "cooling-snowfall" were given to the students in the concrete operational stage in an abstract form. In addition, it has been understood that the climatological causes of the geographical formations of some concepts (wind, rain and snow) should have been explained by considering the children's levels, t and it has been determined that this situation is a problem encountered throughout the textbook and therefore holds negative aspects in terms of language development levels of the students. According to all these, materials that are not prepared in accordance with the level of language development of students may cause misconceptions and confusion. The academic success of the student is also negatively affected as the misconceptions prevent meaningful and permanent learning. Therefore, while teaching a concept, the previously learned should be determined first, and then new ones should be built on. Students should be given a suitable environment to compare what they knew before and what they have just learned.. In this way, learning can be meaningful and internalized (Ecevit & Özdemir Şimşek, 2017). Even if the misconception is revealed, the students will unlikely change what they believe is right. The best method to eliminate the misconception is to bring the student face to face with a problem that he cannot solve with the misconception (Damlı, 2011).

In this study, whether the secondary school 5th-grade social studies textbook was prepared in accordance with the developmental stages of the students was also investigated. According to the research, it was observed that the social studies textbook included materials that prompted students to think and question about the environment, though it was found that an abstract-oriented approach was presented above the levels of the students throughout the textbook. Because a 5th-grade student in Turkey is 11 years old, students in this category of age are those who have just completed the concrete operational stage or are about to do so. According to Piaget, children who are in the concrete operational stage between the ages 7 and 11 (Selçuk et al., 2003) begin to think in an abstract way after the age 11. Nevertheless, considering that they are individuals who have just moved from the concrete operational stage and teaching that they will find hard to understand may bring some pedagogical advantages. Thus, subjecting these 11-year-old children to heavy abstract elements may cause pedagogical difficulties as they have recently completed the concrete operational stage. In addition, it can be said that a sensitivity appropriate for the cognitive development levels of the students is not followed throughout the textbook. This situation can bring various hardships in learning along, as well as affect the process in terms of the quality of students' further learning in a negative way. There are some studies (Piaget, 2007; Pinter, 2011) pointing out that following a strategy suitable for students' cognitive levels is effective on their success.

According to Barth and Demirtaş (1997), fifth-grade students are interested in maps, personal collections, educational games, imitations, group work, speaking and gaining experience (Doğan, 2007). Therefore, children at this level need to be presented with appropriate materials in their learning process. For this reason, it is important that what is given in the textbook is suitable for all aspects of student development. Along with that, it was observed that the 5th-grade social studies textbook was above the language development level of the students. Similar difficulties were faced in different parts of the textbook, and it was understood that the concepts given were reported above the language development levels of the students. According to various studies (Ağca, 2012; Ferrand & Bloom, 1997; Honey, 1997; Lantolf, 2000), the child's language development process is in parallel with the psycho-motor development process. The physical development of the child constitutes the basis of his/her mental and language development. This consideration of the language development stages of the child in education can also help his/her acquisition of

language development. Although there are plenty of data on the language development of children, there are some differences arising from their perspectives **as** the language development of a child is primarily evaluated in terms of medical science, social psychology or linguistics (Temizyürek, 2007). According to Aytaş and Çeçen (2010), Language development is important for healthy communication as using the concepts appropriately is essential in terms of serving for precise communication, which is the main purpose of the language. Nevertheless, student success in terms of the concepts given in the social studies textbook can be considered as a sign that the information, materials and other visuals in the textbook are processed and discussed in line with their level and thus presented through appropriate strategies, methods and techniques. According to Pinter (2011), while making plans and programs and during the coursework processes, teachers should also take the proficiency of a student in use of language into account.

With all these results above, it is important to consider the cognitive and language development processes of the students in terms of course programs and materials. Accordingly, it may be beneficial to follow a strategy regarding the learning styles and individual differences of students in connection with syllabus and textbooks. Supporting students with appropriate teaching strategies, methods and techniques of concrete/abstract operational periods can also make significant contributions to other learning processes. What's more, there are also studies showing that students are more successful in collaborative work (Bearison et al., 1986; John & Raphael, 1990; Johnson & Roger, 1990; Jordon, 1997; Kopnina, 2020; Watson, 1992). Learning activities that students will do with people who are similar in age can be an opportunity in teaching individuals to be more successful in terms of permanence in learning. In the language development process in particular, following a strategy suitable for levels of students could positively affect their processes of concept learning. Therefore, it may be important for teachers to use materials such as concept maps, concept networks, mind maps and puzzles in a planned manner in terms of concept learning processes. Thus, the successes that can be achieved in this subject can also help the language development processes of the students. Therefore, a decent and high quality concept teaching process should be continued in line with the language development levels of the students; appropriate teaching strategies, methods, and techniques should be used, and attention should be paid to the use of effective materials for language development levels. Besides, the cognitive development levels of the students should be considered in the education-teaching processes, textbooks should be published in line with the literature on this subject, and a strategy should be followed in harmony with the development levels of students in terms of teacher competencies.

Data availability statement The datasets generated during and/or analysed during the current study are available from the corresponding author on reasonable request.

Declarations

Conflict of interests I certify that there is no actual or potential conflict of interest in relation to this article.

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