

CONCEPT LEARNING AND TEACHING IN SOCIAL STUDIES

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INTRODUCTION

Social studies at primary and secondary school level is more than a collection of concepts and facts that children need to memorize, and in which two or more of the social science disciplines (geography, history, economics, political science/civics, etc.) are taught with an integrated approach (Farris, 2015: 22). It is the school curriculum where students learn to understand and interpret the world—people, places, cultures, systems and problems (Parker, 2010). Parker (2014: 26) defined the objectives of this course within the scope of social understanding and citizenship competence. Social understanding is knowledge of human life and societal needs derived from the social and human sciences. The citizenship competence, on the other hand, is the readiness and willingness to assume civic responsibilities. With this course, which focuses on human experiences, children are provided with democratic life skills such as evaluating information sources critically, recognizing different perspectives, and solving conflicts (Lee, 2008: 4). In addition to these skills, facts, concepts and generalizations that play a critical role in the use and development of knowledge (Jadallah, 2000) are also taught (Zarrillo, 2012). In this section, the conceptual dimension of the social studies content is discussed.

Concepts have an important place among the learning experiences of students in schools (Jadallah, 2000). Social studies concepts have meanings that develop with experience and learning (Parker, 2014). Due to its interdisciplinary nature, social studies deals with concepts and themes, ideas and beliefs, and people and places. Concepts enable the course content to be structured by establishing meaningful connections between different disciplines (Lee, 2008). Some educators advocate that the social studies curriculum should be developed around basic concepts that support meaningful learning (Brophy, 1990). The fact that social studies concepts suggest relationships between thoughts and events that allow students to make meaning of, classify and remember information (Singer, 2003: 81) reinforces this claim.

Social studies is a course given in the context of constructivist philosophy with an interdisciplinary approach at the primary school level in Turkey (4th, 5th, 6th and 7th grades). Concept teaching is considered very important in this course, which is structured within the framework of 7 learning areas in which interrelated knowledge, skills and

values can be seen as a whole (Ministry of National Education [MNE], 2018). The learning areas where social studies knowledge is built on basic concepts (Doğanay, 2008) are as follows (MNE, 2018):

- ✓ Individual and Society
- ✓ Culture and Heritage
- ✓ People, Places and Environments
- ✓ Science, Technology and Society
- ✓ Production, Distribution and Consumption
- ✓ Effective Citizenship
- ✓ Global Connections

Constructivist learning approach suggests that learning occurs as a result of students' associating their prior learning or their past experiences with new situations or experiences (Farris, 2015). Constructivism, which draws attention to the contributions of individuals to what is learned, requires providing rich teaching and learning experiences in order to create new knowledge (Schunk, 2012). In other words, new information is presented to facilitate students' understanding, contradictions are revealed to challenge existing concepts, and opportunities are provided for them to revise or correct conceptual understanding (Brooks & Brooks, 1999). Teachers, who will prepare a supportive learning environment instead of lecture and responding to the students (Schunk, 2012), structure their lessons around basic concepts and present the curriculum moving from the whole to the parts (Brooks & Brooks, 1999). Brooks and Brooks (1999) considered the organization of learning within the framework of basic concepts as a critical dimension of constructivist pedagogy and emphasized its function as a springboard in the realization of concept acquisition.

What is Concept?

Concepts have been regarded by cognitive psychologists as basic thought units for many years (Machery, 2009; Malt, 2010). Due to the information processing principle of the cognitive system, each new object is not handled independently of previously encountered objects; instead, in terms of concepts, new objects are classified with old objects (Hahn & Chater, 1997). The concepts underlying all higher-level cognitive processes have therefore been among the central topics in cognitive science (Solomon, Medin, & Lynch, 1999; Akman, & Koçoglu, 2017).

Concepts as mental constructs are an organized form of knowledge about an object, event, action, quality or relationship (Klausmeier, 1992). They are of critical importance for perceiving, thinking about and remembering objects and events in the world (Smith & Medin, 1981). They also play a leading role in the construction of new knowledge. Indeed, the construction of knowledge begins with our observations of events or objects through existing concepts (Novak & Gowin, 1984). On the other hand, concepts allow us to go beyond the given information; in other words, when we assign an entity to a class

based on its perceived qualities, we can make inferences about some of its undetected qualities (Smith & Medin, 1981).

In the relevant literature, concepts are grouped according to whether they are concrete or abstract (Senemoğlu, 2020), and whether they are perceptual, relational and associative concepts (Zentall, Galizio, & Critchfield, 2002). While concrete concepts (e.g. apple) are learned spontaneously from the first months of life, teaching is generally needed to learn abstract/defined concepts (e.g. revolution) (Senemoğlu, 2020). The main determinants of the distinction expressed by Zentall et al. (2002) are that stimuli are grouped on the basis of shared physical features (perceptual concepts), relationships between features (relational concepts), or shared functions (associative concepts). Although concepts are grouped in different ways, they have some common features. Ülgen (2004: 108-116) lists the characteristics of the concepts as follows:

1. Perceived properties of concepts may vary from individual to individual.
2. The concept has an original (prototype).
3. Some properties of concepts can sometimes be members of more than one concept.
4. Concepts consist of properties of objects and events that can be observed both directly and indirectly.
5. Concepts are multidimensional.
6. Concepts can be grouped within themselves according to certain criteria that fit their characteristics.
7. Concepts form a whole based on the interactions between them.
8. Concepts are related to language.
9. The properties of concepts are also concepts in themselves.

Meaning cannot be thought independently of concepts. Concepts help to define, explain and understand the qualities of a new object (Murphy, 2002). Moreover, they serve multiple functions such as identifying relationships (Wisniewski, 1995), establishing communication and supporting learning (Solomon et al., 1999; Wisniewski, 1995). Smith and Medin (1981) discuss the function of concepts within the framework of categorization and conceptual combination. According to them, concepts are tools for pattern recognition and responsible for expanding the conceptual structure by combining existing concepts with new ones.

Concept Learning

Although most students learn many concepts through observation and experience, concept learning is an integral part of any school curriculum (Markle, 1975, as cited in Prater, 1993: 51). Therefore, concept learning has been the main topic of interest for those who are interested in how effectively teaching is implemented in schools (Gagné, 1965). According to different definitions, concept learning involves being able to acquire

concepts (Machery, 2009), making decisions in situations such as what to name a certain object and what information is needed (Hunt, 1962), obtaining explanations that clarify the structure of generalizations (MacDonald & Witten, 1989: 500) and creating information in the mind by categorizing stimuli (Ülgen, 2004: 117).

Concept learning is fast and flexible because newly learned information is adapted to new situations with little effort (Zeithamova et al., 2019). Klausmeier (1975) suggests that concepts are learned in a sequential order from the concrete level to the identity level, then to the classificatory level and finally to the formal level. According to him, the concepts learned up to a certain level can be used to solve problems, generalize positive examples and distinguish non-examples, and grasp hierarchical relationships. Concept learning levels and cognitive operations performed at these levels are shown in Figure 1.

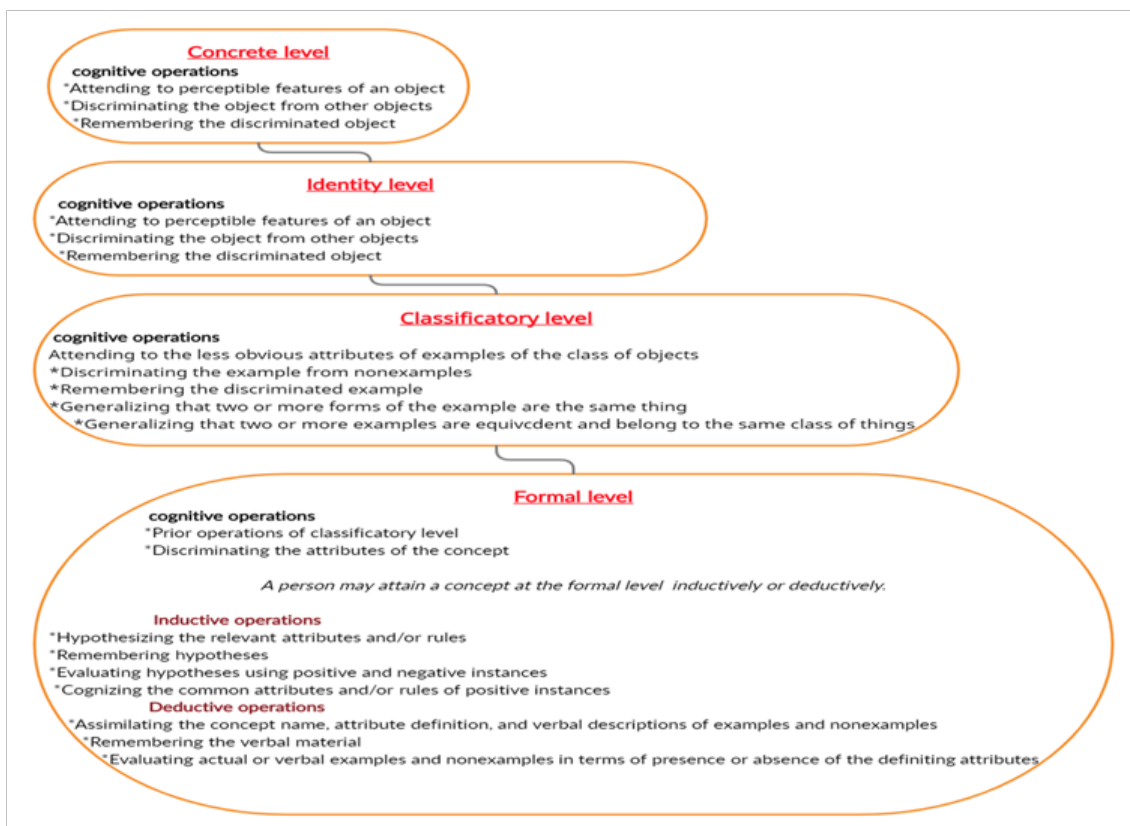


Figure 1. Levels of concept learning and cognitive operations adapted from Klausmeier (1975)

Learning sometimes requires great effort but at other times it takes place easily, but it is a very complex task (Driscoll, 2014). Although school learning is conceptual in nature (Gagné, 1965), students are mostly expected to learn concepts through the lecture method (Anderson & Kulhavy, 1972). However, in the learning process, the inadequacy of the students' prior knowledge about the concept to be learned, the confusion about concepts and the poor organization of the teaching environment make it difficult to learn the concept (Ülgen, 2004). In this regard, it is necessary to associate new information with existing concepts, and to ensure active participation of students in mental activities that create the

desired learning in cognitive structure (Kyriacou, 2009), because learning is successful not when students repeat what is taught, but when they can exhibit conceptual understanding (Özden, 2021). Klausmeier and Goodwin (1971, as cited in Marzano, 1985: 27-28) listed eight activities that should be followed in the concept learning process as follows:

1. To get a definition of the concept that states its defining attributes.
2. To identify the defining attributes of the concept and also some of its irrelevant attributes.
3. To identify examples and non-examples of the concept that will be used in the instruction.
4. To identify examples and non-examples of the concept that will be used in testing to ascertain whether the concept has been attained.
5. To identify the taxonomy of which the concept is a part and to indicate the supraordinate-coordinate-subordinate relations of the particular concept to other concepts.
6. To identify some of the principles in which the concept is used.
7. To identify kinds of problems whose solution will involve use of the concept, a principle, or both.
8. To identify the names of the attributes of the concept.

Students' learning of concepts or identifying and eliminating existing misconceptions depends largely on teaching practices (Ülgen, 2004). In order to help learners acquire new concepts and facilitate concept learning, strategies can be employed such as making clear the features defining the concept, offering various positive and negative instance about the concept simultaneously, and administering of assessment tasks in order to monitor and develop concept learning (Ormrod, 2012).

Concept Teaching

When it comes to attempts for effective social studies teaching, the question of “Is it possible to teach social studies without concepts?” may arise. According to Hertzberg (1981), the answer is clear: It is impossible to teach social studies without concepts. With concept teaching, students are intended to acquisition concepts by using teaching strategies that contribute to the formation of conceptual knowledge (Tennyson & Cocchiarella, 1986). Considering that our knowledge of the world is represented by concepts (Murphy, 2002), concept teaching seems to be a key point in the social studies course (National Council of the Social Studies [NCSS], 2017), which enables children to effectively understand an increasingly diverse world.

Concept teaching is necessary for concept learning (Higgins & Reid, 2017). The emphasis on teaching at the conceptual level in the learning process is based on a number of reasons. These reasons are that permanent learning is conceptual; knowledge can be grasped by applying it to new situations; prior knowledge affects subsequent learning, and that it is

not possible to learn all knowledge; consequently, gaining basic knowledge conceptually comes to the fore (Ayas, 2007: 108). Among these, especially looking at the last rationale from the perspective of social studies and asking the question "Should social studies teaching be structured according to the subjects in the textbooks or on the concepts that form the basis of the subjects?" seem to be useful. Insufficient time allocated for teaching the heavy social studies course content (Altay, 2020; Göksu, 2020; Koçoğlu & Egüz, 2019; Yılmaz & Tepebaş, 2011) prevents the achievement of the targeted acquisitions in the curriculum. Moreover, the fact that teachers act with the concern of being able to teach all the subjects in the curriculum makes it difficult for them to use activity-based teaching practices. However, teachers should plan and conduct their lessons according to the concepts that form the basis of the subjects instead of topic-based teaching. Introducing the concepts to their students and making the relationships between the concepts more clear and understandable via various visuals makes learning effective. It should be noted that concepts are key to understanding the social studies content (Russell, Waters, & Turner, 2014).

In concept teaching, two approaches are followed: expository teaching (from rule to example) and discovery teaching (from example to rule) (Erden & Akman, 2005). One of these approaches is expository teaching, which is used in cases where students do not have prior knowledge about the concept, whereas discovery teaching is used to facilitate learning in conditions where examples of concepts are known by students and their characteristics can be observed directly. In both approaches based on cognitive learning theories, students are expected to find similar and different aspects of the concept by providing plenty of examples to them (Erden & Akman, 2005: 203-204). In the literature, a 4-stage process is adopted for concept teaching (Tennyson & Park, 1980: 65-66):

- 1.* The taxonomical structure of the content should be determined. The three levels of concept structure—superordinate, coordinate, and subordinate—should be analyzed with identification of critical and variable attributes.
- 2.* A definition of the concept should be prepared in terms of the critical attributes, and a pool of examples should be prepared on the basis of critical and variable attributes.
- 3.* The examples should be arranged in rational sets by appropriate manipulation of the attributes. Within a rational set, containing one example from each coordinate concept, the examples should have similar variable attributes.
- 4.* The presentation order of the rational sets should be arranged according to the divergency and difficulty level among examples of the concept, and the presentation order of the examples within rational sets should be decided according to updated information about the learner's knowledge state.

Graphic Organizers

Teachers want their students to develop deep comprehension in learning social studies concepts (Gieselmann, 2008). Graphic organizers are ideal tools for teaching social studies terms at all grade levels (Gallavan & Kottler, 2007) and difficult concepts in printed materials such as textbooks, workbooks, and exercise books (Gieselmann, 2008). Graphic organizers, which are rooted in schema theory, help present new information to students and review previous lessons (Dye, 2000).

Schema theory, which is frequently used to explain the effectiveness of graphic organizers (Dunston, 1991: 58), is essentially an information processing model (Augoustinos & Innes, 1990) and argues that information is stored in the long-term memory in schemas that provide a structure for making sense of new information (Slavin, 2006: 191). According to this theory, which states that new information should be associated with previous information, teachers provide a supportive tool for students to have prior knowledge about the concept and to establish the necessary connections between what is taught and prior knowledge (Dye, 2000: 72). Graphic organizers are excellent tools that provide organizational structure for the presentation of information, i.e., organizing the information to be learned and relating it to the known (Dunston, 1991: 59).

Graphic organizers are effective strategies for organizing concepts and demonstrating how they are related to each other (Irwin-DeVitis & Pease, 1995: 57). Common examples of organizers are semantic maps, semantic feature analysis, cognitive maps, story maps, framed outlines and Venn diagrams (Kim, Vaughn, Wanzek, & Wei, 2004). As teaching-learning tools, graphic organizers can be used in curriculum planning and development, supporting understanding in learning new material, improving students' learning skills and evaluating their learning (McKnight, 2010). Offering graphic organizers to students helps to develop critical thinking and alleviate cognitive demands (Singleton & Filce, 2015).

The use of graphic organizers in social studies is a popular research topic. Research has revealed the effect of graphic organizers on understanding the complex topics presented in the social studies curriculum (Mann, 2014), on students' social studies academic achievement (Akbaş & Toros, 2016; Akyol Gök, 2014; Altıntaş & Altıntaş, 2008; Bektaş Öztaşkıran, 2014; Çolak, 2010; Dönmez, Yazıcı, & Sabancı, 2007; Gürgil, 2020; Kan, 2012; Karadeniz, Tangülü, & Melike, 2013) and their attitudes (Akyol Gök, 2014; Çolak, 2010; Governale, 1997; Kan, 2012). Organizers with visuals and verbal information (Bromley, 2008) provide students and teachers with the opportunity to monitor learning, receive continuous and accessible feedback, and discover the next steps for learning (Irwin-DeVitis & Pease, 1995: 59). Some of the graphic organizers that can be used in social studies learning environments are briefly mentioned below.

Concept map: Concept map are schematic demonstrations that represent relationships

between concepts in the form of propositions (Novak & Gowin, 1984). This tool, which reveals concepts and propositions, organizes information in a hierarchical structure in which subordinate concepts are gathered under superordinate concepts (Willerman & Mac Harg, 1991: 707). Providing valuable information about the content and organization of students' knowledge, concept map help teachers to identify and correct misconceptions (McClure, Sonak, & Suen, 1999: 491). They have multiple uses in the context of education in organizing and presenting information, and supporting and evaluating learning (Cañas et al., 2003).

Mind map: Mind map is a creative and effective note-taking technique that maps ideas (Buzan, 2005). The purpose of this technique, which allows students to imagine and explore the relationships between concepts, is to find creative associations between ideas (Davies, 2011). It helps individuals in many ways, including organizing and clarifying ideas, being creative, concentrating, problem solving, and remembering better (Buzan, 2004, 2005).

Cause-and-effect diagram: A cause-effect diagram, also known as an Ishikawa diagram (after its inventor) or a fishbone (after its appearance), is a visual representation of possible causes of a particular problem or situation (Oakland, 2003: 289). This diagram, which shows the relationship between cause and effect in a rational way, is used to gain new information about any problem, actively search for causes and conduct discussions (Ishikawa, 1976).

Story maps: Story maps are graphic representations of all or some of the elements that constitute a story and the relationships between them (Davis & McPherson, 1989: 232). These tools, which present a story visually, provide students with the opportunity to associate their prior experiences and knowledge with the text, to summarize their thoughts, and for teachers to evaluate what students have learned from the text (Reutzel, 1985). Versions of story maps include inferential story maps, locating information story maps, cause/effect story maps, and comparison/contrast story maps. (Davis & McPherson, 1989).

Semantic feature analysis: Semantic feature analysis are two-dimensional tables used to learn the descriptive and distinctive features of concepts (Ayas, 2007). When students participate in this type of activity, they activate prior knowledge and support it with examples, organize the superordinate and subordinate concepts according to their hierarchical relations, and use the processes of predicting, confirming and integrating (Anders & Bos, 1986: 615).

Learning and Teaching with Technologies: Web 2.0

Until recently, technological classroom applications were limited to Web 1.0 tools that included movies, television, projections, and radios, which lacked interaction and

collaboration (Schunk, 2012), whereas today, Web 2.0 tools that encourage free exchange of information and ideas and large-scale collaboration among different user groups (eg, blogs, wikis, podcasts, skype, etc) provide valuable educational insights (Crane, 2012). This represents a shift from a paradigm in which a vast majority of users act only as content consumers to a more active engagement, creation and sharing (Crook & Harrison, 2008). Web 2.0, also called the read/write web, offers users a variety of ways to personalize their online presence (Hall, 2009).

The understanding of putting students at the center of the learning process, instead of teacher-centered learning, refers to a transition from the role of teachers who possess knowledge for a specific purpose and transfer it, to the role of the students who cooperate with each other and manage their own learning processes through active participation (Jahnke & Koch, 2009). The use of Web tools helps this constructivist understanding, which encourages students to contemplate what they know about a subject, seek new information, solve authentic problems, and interact with others to develop understanding (Solomon & Schrum, 2007). Although Web 2.0 tools are not specifically designed for educational purposes, they have had a positive impact on authentic learning and autonomy in learning by providing unique environments to change the teaching process and the nature of learning experiences (Konstantinidis, Theodosiadou, & Pappos, 2013).

Web 2.0 technologies, where any participant can be a content creator (Cormode & Krishnamurthy, 2008), allow sharing of images, audios and videos, and creation and maintenance of social networks (Bennett, Bishop, Dalgarno, Waycott, & Kennedy, 2012). Thousands of Web 2.0 applications with learning and teaching potential for students and teachers have the potential to improve education. For example, these tools provide a number of benefits such as customizing learning content, setting the learning pace, establishing contact with other students having similar profiles, instant chatting experience with the tutor (Magolda & Platt, 2009), enhancing learning experiences, participating actively in learning activities, having the opportunity to innovate and create in a collaborative multimedia environment, and forming learning communities and joining these communities (Yuen, Yaoyuneyong, & Yuen, 2011: 110). Designed to improve collaboration and sharing, Web 2.0 tools can also be used as alternative teaching applications in concept teaching: Creately (<https://creately.com>), Lucidchart (<https://www.lucidchart.com>) and Cacao for diagramming. (<https://cacao.com>); and MindMeister (<https://www.mindmeister.com>), Bubbl.us (<https://bubbl.us>), MindMup (<https://www.mindmup.com>), Mindomo (<https://www.mindomo.com>) and Slatebox (<https://slatebox.com>), Ayoa (<https://www.ayoa.com>) for mind mapping. Below are brief description about one of the specified diagram creation and mind mapping applications and an example of a graphic organizer from the field of social studies.

Creately: This application, which is used to create diagrams in cooperation, provides users the opportunity to create flowchart, mind maps, concept maps, network diagrams, timeline, cause-and-effect diagram, story maps, Venn diagrams (<https://creately.com>). An

example of a concept map prepared using the Creately application is presented in Figure 2 below.

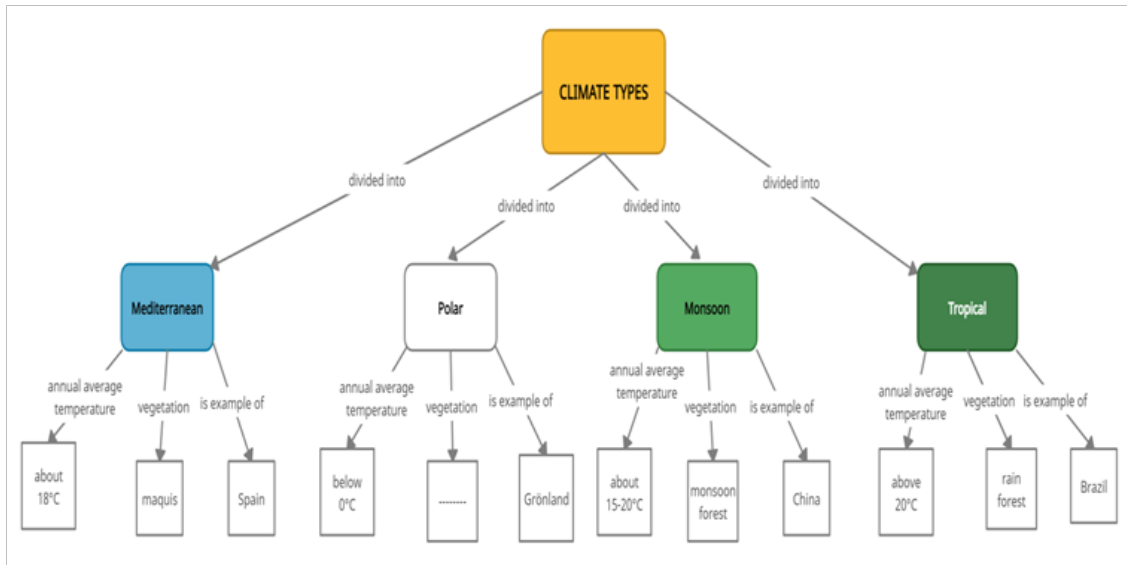


Figure 2. An example of concept map on climate types

Ayoy: Ayoy is a digital mind map tool that allows users to collaboratively create mind maps and share them with others. It is a flexible application that allows you to work online and offline, wherever and whenever you want (<https://www.ayoy.com>). An example of a mind map prepared using the Ayoy application is presented in Figure 3 below.

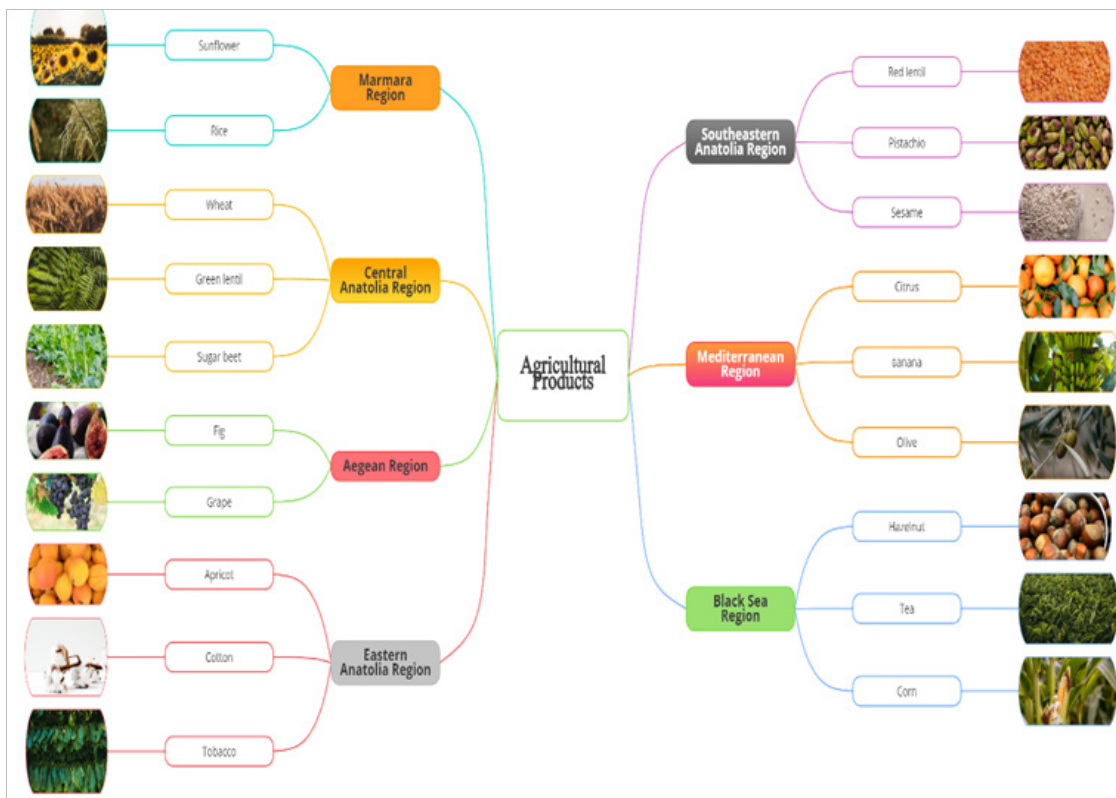


Figure 3. An example of mind map on agricultural products

CONCLUSION

Technology is increasingly used in social studies teaching (Farris, 2015). Web 2.0 tools, which are among these technologies and have become popular in students' daily lives (Bennett et al., 2012), enable students and educators to cooperate and interact (Tunks, 2012). In addition, when used effectively, they enhance learner motivation and autonomy by involving students in more participatory learning, and encourage extended learning (Crook & Harrison, 2008).

Technological tools, which also the focus of attention in concept teaching (Prater, 1993), can play an important role in effectively transferring of social studies content to students. Being considered a critical element of educational activities such as blogs, wikis and multimedia applications, Web 2.0 tools (Williams & Chinn, 2009) can contribute to meaningful learning by transforming into an environment where graphic organizers (eg, concept map, cause-and-effect diagram, mind map) used in concept learning are developed and shared (eg, Creately, Lucidchart, Slatebox). The point that should not be overlooked here is that while the dominant role of teachers in teaching concepts is undeniable, when students create graphic organizers individually or in teams (which is the expectation), they will develop the practice of organizing information visually beyond the classroom walls and proceed from surface learning to deep learning (Fisher & Frey, 2018: 765).

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