

CONCEPT CARTOONS AS A TEACHING TOOL IN SOCIAL STUDIES

SOSYAL BİLGİLERDE BİR ÖĞRETİM ARACI OLARAK KAVRAM
KARİKATÜRÜ

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Abstract

According to constructivist approach, students are supposed to be active in the construction process of their knowledge and therefore the use of visual tools which provide students to participate in learning process and to help them learn in a more concrete way to learn meaningful by creating a discussion environment is of great importance. One of the so-called tools is concept cartoons. Concept cartoons are defined as illustrating expressions of a discussion of three or more characters. In this discussion, each character defends a different thought. One of the ideas presented in the discussion represents thinking style accepted as a scientific truth, and the others represent thinking styles scientifically not true but, formed by the students according to their own understanding. These ways of thinking are also assumed as misconceptions by scientists. Naylor and McMurdo are the people who designed and used concept cartoons first. In this study, some examples developed by researchers about using concept cartoons as a teaching aid will be given and suggestions will be provided. Therefore, the study is based on the survey method.

Keywords: Concept cartoons, social studies, teaching tool.

Özet

Yapılandırmacı yaklaşıma göre, öğrencilerin kendi bilgilerini zihinlerinde inşa etme sürecinde aktif olmaları gerekmektedir. Bununla birlikte öğrencilerin öğrenme sürecine katılımını sağlayan görsel araçların kullanımı onlara bir tartışma ortamı yaratarak anlamlı öğrenme için daha somut bir ortam hazırlamaktadır. Söz konusu bu araçlardan birisi de kavram karikatürüdür. Kavram karikatürü, üç veya daha fazla karakter tartışmasının resimli bir ifadesi olarak tanımlanır. Bu tartışmada, her bir karakter farklı bir düşünceyi savunur. Bu tartışmada sunulan düşüncelerden birisi bilimsel bir gerçek olarak kabul edilen düşünce stilini temsil eder ve diğer düşünceler ise sadece bilimsel düşünce stillerini değil aynı zamanda öğrencilerin kendi anlayışlarına göre oluşturdukları düşünceleri de temsil eder. Ayrıca bu düşünce yolları bilim adamları tarafından kavram yanılgıları olarak ifade edilir. Naylor ve McMurdo kavram karikatürü kavramını ilk kullanan ve tasarlayan insanlardır. Bu çalışmada bir öğretim materyali olarak kullanılan kavram karikatürü kavramı hakkında araştırmacılar tarafından geliştirilen bazı örnekler verilmiş ve incelenen konu hakkında öneriler sunulmuştur.

Anahtar Kelimeler: Kavram karikatürü, sosyal bilgiler, öğretim aracı

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Introduction

There have been important modifications in the program of Social studies, taking constructivism as its basis by being renovated, One of these modifications is to stress the teaching of various skills, values and concepts under their own separate categories. As the main focus of this research is on concepts, concepts will primarily be worked on.

To the question 'What is concept?', many answers can be given. Concepts are the main pillar stones of human thought. They are formed by both directly and indirectly observable features of objects and events. As they are mental classifications, they exist in our thoughts not in the real world. In the real world, only facts which exemplify the concepts can exist. (MNE Program of Social Sciences, 2009). Concept is an information form that represents changeable features of different objects and facts, which gain meaning in human mind. Concept, at the same time, can be defined as the image of objects and facts in human mind (Yel, 2009). In general sense, concept is word or word group used to categorize people of similar characteristics, objects, actions or ideas under a group (Wooler & Scott, 1988; Cited by Alkış, 2009).

Learning concepts starts when the individual is born and more complex concepts are learned as individuals get older in terms of age. Children, generally, learn samples of concepts randomly by experiencing. The programmed learning of concepts occurs at schools (Elgen, 2004).

Concepts, regarded as the building stone of knowledge develops parallel with individuals' thought and language development. Concepts which are not constructed completely cause important problems in individuals' learning life. From this perspective, teaching concepts has an important role in the process of teaching. Especially, in the modified primary education programs, the importance of it must be learning concepts has been emphasized in terms of all disciplines (Dündar, 2008).

In the teaching of social studies, determining the learning of concepts as focus point of teaching has lots of benefits: it has a positive effect on students' academic success, it simplifies the learning and recalling, it eases communication, it individualizes the teaching, it helps to notice the real and wrong perception, it helps complex understanding, it improves problem solving and reasoning skills (Doğanay, 2003).

In the program, it was stated that concept is a mental construction taking the facts as basis and in this frame, concept is defined as a construction which defines the common features of objects, humans, emotions or ideas and it can be expressed orally. It has been expressed that in the social studies, concepts have a positive effect on students' academic success, it eases the learning and recalling, it individualizes the learning, it helps to notice real and wrong perception, it helps to understand complex subjects and reasoning. It is aimed that 91 concepts at the 4th grade, 121 at the 5th grade, 145 at the 6th grade and 157 at the 7th grade will be gained by students (Özdemir, 2009).

In the teaching of concepts, which are the fundamentals of knowledge, various techniques have been developed. Principal examples of them can be listed as concept maps, concept network, table of understanding analysis, concept crossword puzzles, constructed grids, conceptual change text and concept cartoons.

Purpose of the Research

The main purpose of this research is present suggestions and give samples about how cartoons can be used as a means of teaching in social studies.

Method

This research was developed in conformity with survey model. Survey models is a research approach which aims to describe a case which existed in the past or still exists, as it is now. The event being the subject of the research, the individual or an object is tried to be defined in its own conditions and as it is. No effort to change or influence them in some ways, is made (Karasar, 2000).

Concept Cartoons

Concept cartoons for teaching have a more useful and effective structure than cartoons in other types and they have their own names. Firstly, it was used in underground vehicles as a result of a study by the support of Physic Institute in London and it includes the question 'What do you think of?' (Uğurel, Moralı, 2006). Although a great majority of studies are oriented towards the teaching of Science (Oluk & Özalp 2007; Baysarı, 2007; Durmaz, 2007; Kuşakçı, 2007; Burhan, 2008; Balım, İnel & Evrekli, 2008; Demir, 2008; İnel, Balım & Evrekli, 2009; Şaşmaz-Ören, 2009; Evrekli & Balım 2010; Akkaya, 2011; İnel & Balım 2011, Balliel & Bilgili, 2011; Gölgeci & Saraçoğlu, 2011; Ceylan Soylu 2011; Yavuz & Büyükekşi 2011; Erdoğan & Cerrah Özgeç, 2012; Demir, Uzoğlu & Büyükkasap 2012), it must be used research outputs from doctorate thesis different diasiplinies.

Concept cartoons are defined as the illustrated expression of discussion made by three or more characters. In this discussion, each character defends a different thought. One of the ideas presented in the discussion is the style of thinking accepted as scientific truth, the others represent those which are not scientifically true but styles of thinking that students can formulate on their own. These styles of thinking are accepted by scientist also as concept errors. Those who first envisaged and used the concept cartoons were (Naylor and McMurdo, 1990). Due to the characters' dialogue, students have the freedom to make judgements that agree or disagree with the views expressed by the characters without feeling threatened by needing to express their own opinions publicly (Kinchin, 2004; Transferred by Sexton, Gervasonive & Brandenburg, 2009).

In concept cartoon teaching, alternative ideas, which include the scientifically acceptable one, regarding a scientific phenomenon are presented in a form of cartoon-style drawing in a poster. Ideas are put forward by cartoon characters in a discussion format. Then, the learner is invited to join the debate with the cartoon characters. (Kabapınar, 2005).

So, what are they? Concept cartoons are cognitive drawings or 'visual disagreements' that use a cartoon-st)'le design to present mathematical conversations inside speech bubbles. The viewpoints portrayed are all different and it is this difference that acts as a catalyst for further conversations, as learners talk together to discuss their thinking (Dabell, 2008).

At first sight, concept cartoons can be viewed as teaching/learning materials. However, this would not be a complete definition. By probing students' ideas and providing a purpose for discussion and investigation of ideas, concept cartoons will work as teaching/learning strategies as far as constructivist approach is adopted. As Gunstone (1988) underlines that the methods used to probe students' ideas are also excellent teaching/learning strategies in the constructivist view. In this sense, the term "concept cartoon" will be used to mean a teaching method where students are invited to air, debate, and test their ideas.

Realizing the use of dialogs among characters for teaching in the development of conceptual cartoons has been an important milestone. Conceptual cartoons bring up the misunderstandings for a sample in class by illustrating the things in students

mind in a larger scale (İngeç, 2006). In conceptual cartoons, views taken from the daily life with regard to the subject is put forth in an argumentative way. In the meantime, the students are asked to discuss with the characters (Kabapınar, 2005). Below, a cartoon created by Naylor and Keogh appears.

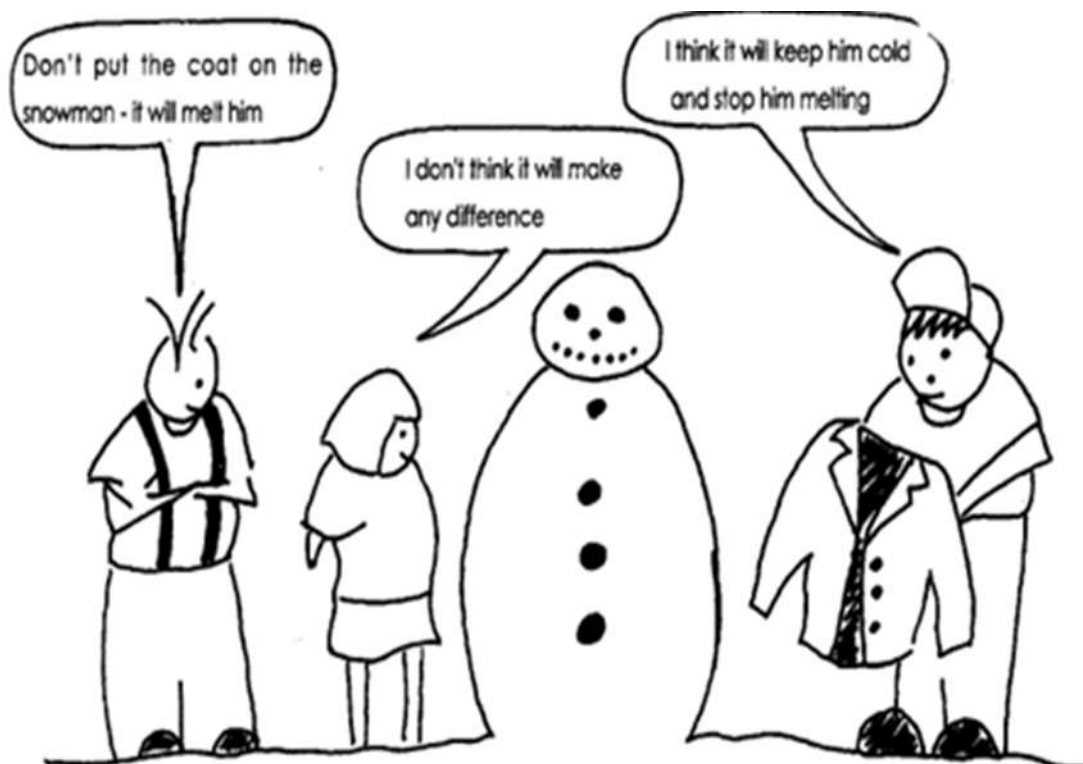


Figure 1: Concept Cartoon by Keogh

The cartoon above is about a very common misconception. Some materials are thought to heat up substances. The first character stated that the coat would melt the snowman, the second one stated that there would be no difference, and the third one told that it would keep the snowman cold. The coat on the snowman would stop the snowman's melting by keeping the heat away from the snowman instead of melting it. With this cartoon, it is determined whether such a misconception appears among students or not and it is removed.

According to Keogh, Naylor and Wilson (1998, p. 219), concept cartoons need to have the following features as teaching materials;

- A minimal amount of text is used.
- Scientific phenomena are presented in relation to the everyday situations.
- Alternative ideas are selected on the basis of research on students' understanding so that all ideas can be seen as credible by learners.
- Alternative ideas include the scientifically correct idea.
- Alternative ideas appear to be of equal status so that learners cannot work out which alternative is correct from the context.

Concept cartoons are more effective when discussed in a mixed-ability group of learners. This results in a greater degree of exchange and allows different ideas to surface, which can then be debated (Dabell, 2008).

Guidance on the utilization of the concept cartoons was provided. The guidance material also included an explicit invitation to the teachers to use the concept cartoons in any additional ways which they felt were appropriate. Typically, a lesson based on the concept cartoons involved:

- a brief introduction to the activity;
- an invitation to the learners to reflect on the concept cartoons and to discuss
- in groups what they think and why; interaction and intervention by the teacher as appropriate during the teaching session;
- practical investigation or research-based activity to follow up the learners ideas as appropriate, encouraged and supported by the teacher as necessary;
- a whole class plenary to share and challenge ideas. (Keogh & Naylor, 2009).

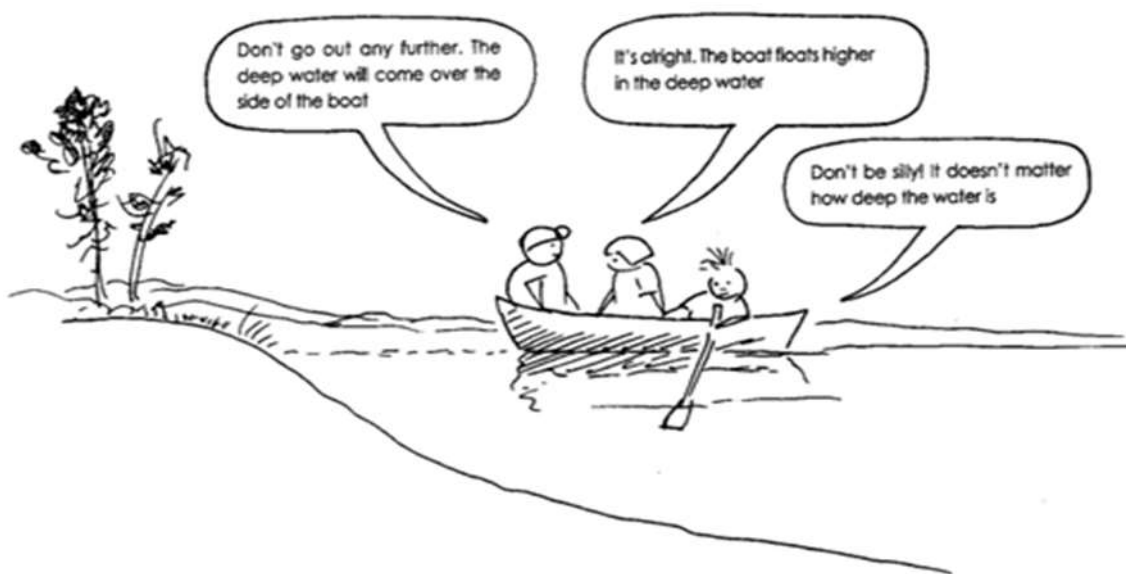


Figure 2: Concept Cartoon by Keogh and Naylor

According to Kuşakçı Ekim (2007), conceptual cartoons provide easiness for teachers to understand students' thoughts within a very short time. Teachers not only can use conceptual cartoons to learn about students' previous knowledge about the subject at the end of the course unit for the purpose of assessment but also they can also make use of these cartoons both inside and outside the classroom in the form of homework so as to improve students' thinking and help them relate what they learn with daily life.

Concept cartoons are used for many different aims. Teachers use concept cartoons at very beginning of the subject in order to study a subject investigating the relationship between theory and real life, to investigate their own or students' ideas and control them, to progress the discussion, and to search possible research matters; at the end of the subject, to review the learning process and to use the ideas in the situations.

Discussion and Result

Numerous studies regarding concept cartoons put forth the effectiveness of concept cartoons on achievement, attitude, and eliminating misconceptions.

Durmaz (2007) determined that in elementary school 8th grade, teaching Mitotic-Meiosis Cell Divisions unit with concept cartoons has positive contributions to students' achievement and affective properties.

Baysarı (2007) has found that in elementary school 5th grade, Science and Technology course, teaching Living Things and Life unit with concept cartoons has positive effects to students' achievement, science attitude and eliminating misconceptions. In Alkan's (2010) study it was determined that in elementary school 6th grade, teaching Life in Earth unit with concept cartoons increased the achievement. Evrekli & Balım (2010) have shown in their study that in Science and Technology teaching using mind map and concept cartoon has positive effects on students' academic achievement and inquiry learning skills. Gögeli & Saraçoğlu (2011) have found that in Science and Technology course, teaching Light and Sound unit with concept cartoons has positive effects to students' achievement. According to İnel & Balım (2011), concept cartoon supported problem based teaching method has positive effects on elementary school 6 graders' motivation towards science learning. Duran, Balliel & Bilgili (2011) put forth that in eliminating of 6th graders' misconceptions concept maps are more effective than traditional methods. Erdoğan & Cerrah-Özgeç (2012) tested the effectiveness of concept maps on eliminating students' misconceptions with the study Greenhouse Effect and Global Warming and found that concept maps are more effective in these subjects. According to Kuşakçı & Ekim (2007) in eliminating 7th graders' misconception in Journey Through Interior Structure of Substance unit, concept maps are more effective. Demir (2008) made researches on student opinions about some science subjects such as Life Process, Nature of Substance, Substantial Change, Electricity Power and Movement, Light, Earth and its Surrounding, and Energy with using concept maps. In these researches it was found that Science Education students have some alternative concepts and in determining these alternative concepts, concept maps have some superiorities on open ended questions. In Balım, İnel & Evrekli (2008)'s study it was determined that using concept map in science education helps students' questioning new knowledge with their existing experiences and changes their attitudes. They apply to student opinions regarding concept map use in science education. Students declared that concept maps have many benefits and should be used in courses. Şengül (2011) stated that teaching with concept maps in 7th grade mathematics course, improves students' self efficacy beliefs.

Concept cartoons that generally being used in science education actually can be used in every course. These tools that are being used especially for taking students' attentions to the subject, increasing participation in class, seeing and eliminating misconceptions can be used also in Social Studies courses effectively. Making concept maps does not require hand skills; because to prepare these tools it is enough to get required characters and pictures from internet and to support with required writings. Posting prepared concept cartoons in class or on school aisles also can be used for students to make scientific discussions and to ask questions.

There are concept cartoons that developed by researchers and can be used in Social Studies courses taking places below.



Figure 3: Concept Cartoons in Physical Maps

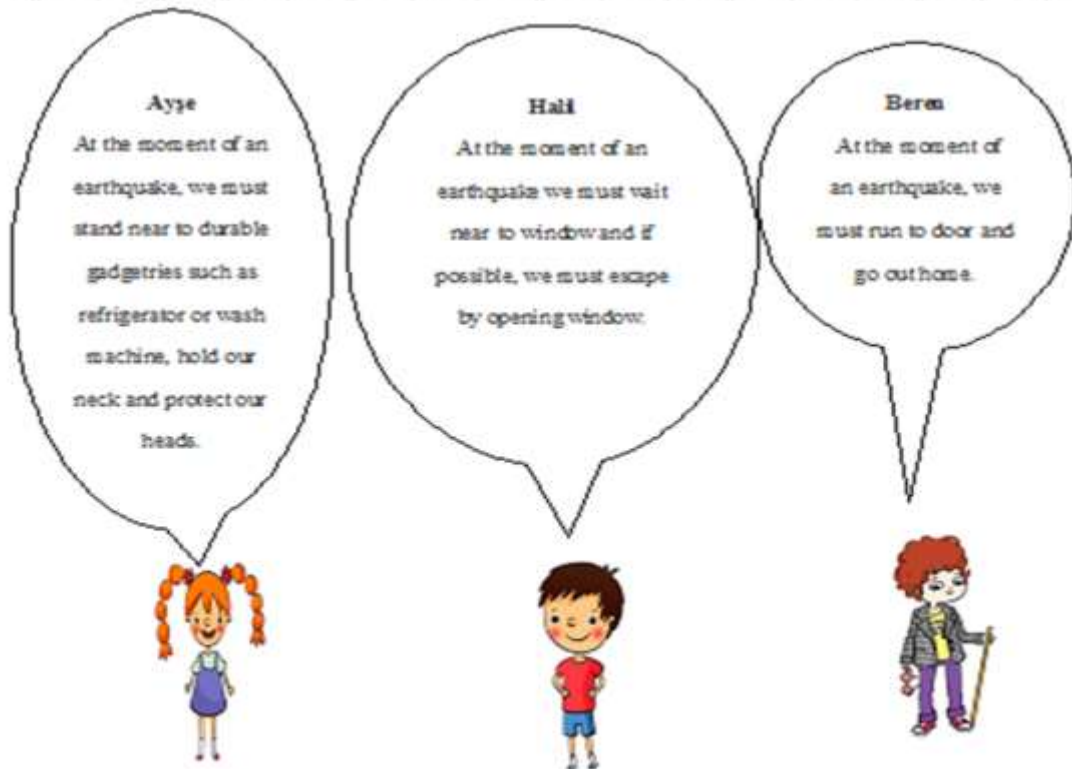
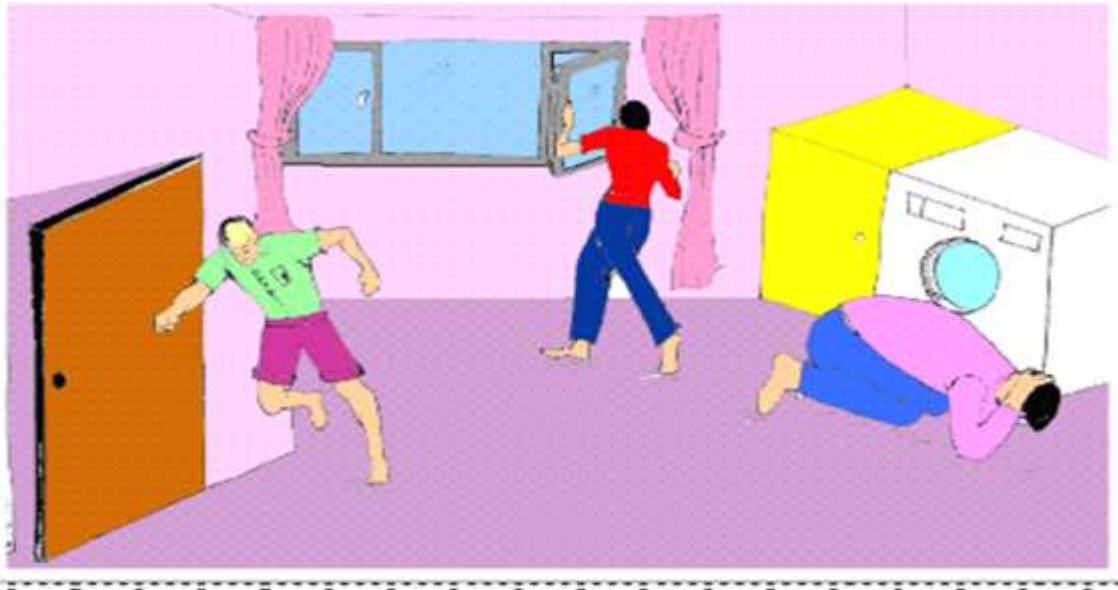


Figure 4: Concept Cartoons in Earthquake

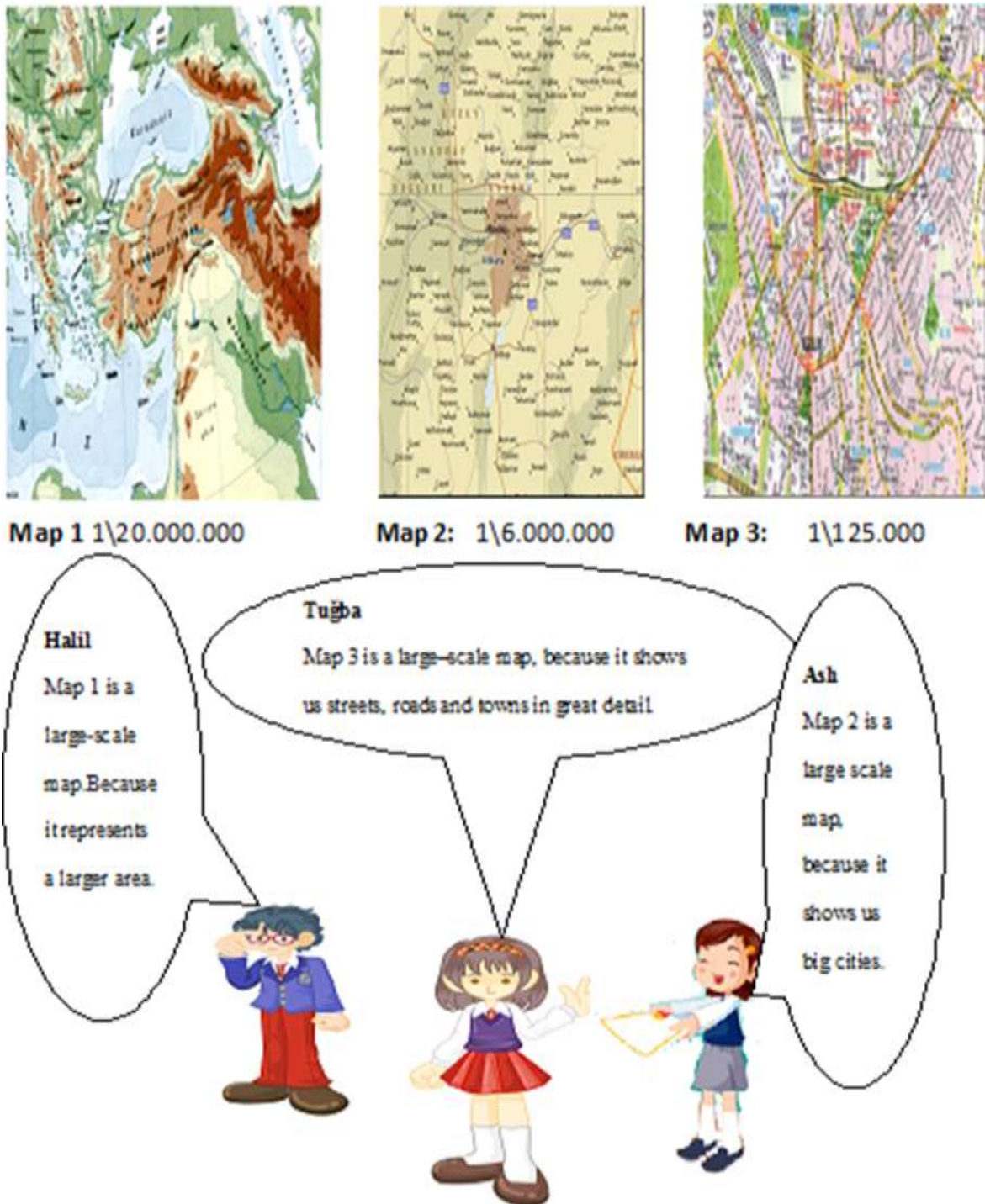


Figure 5: Concept Cartoons For Scale in Maps

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