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The Concept of Weather Event: A Qualitative Perspective from Students[1]

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ABSTRACT This paper aimed at determining the perceptions of 6th grade primary school students with regards to the concept of "Weather Event" included in the 4th and 5th grade Social Studies curriculum. The study group consisted of 242 sixth grade students from 6 different public schools located in the central district of Karabuk Province in the spring semester of the 2012-2013 academic year. The research data were collected via the forms prepared by the researcher containing the statement, "Weather event... is like... This isbecause; ..." and the pictures/cartoons which the students were asked to draw in regard to the concept of "Weather Event". The qualitative research method and the phenomenological design were employed in the study. The data were analyzed through content analysis. Results revealed that the students produced 34 metaphors in regard to the concept of weather event. These metaphors were divided into 5 different categories. It was concluded that a great majority of the participants perceived the concept of "Weather Event" as "changing depending on the conditions", "involving uncertainties", and "continuities".

INTRODUCTION

Everything in the world is conveyed to people by means of concepts. An individual understands his/her external world through concepts. Human life involves a great amount of known and unknown information. Concepts constitute the basis of all such information (Kilicoglu 2011). A concept may be regarded as the first association of any being or object that comes into existence in the mind when such being or object is mentioned (Cepni et al. 2005). The social studies course included in the primary education curriculum is in relation with different disciplines. Thus, every discipline introduces many concepts to this field. The new social studies curriculum prepared by taking into account the foregoing has focused much attention on concept of teaching. It is stated that concept teaching plays an important role in the effective introduction of basic information to students (Beydogan 1998).

Throughout their lives, people encounter various concepts and learn them via education and observation. Concepts may be acquired through both implicit learning and formal education. On the other hand, it can be said that early years of childhood have a more critical importance for the acquisition of concepts (Kaygusuz 2011). Students participating in the learning process with some foreknowledge may improve their knowledge and skill levels with what they learn newly. In this process, attention should be paid to students' activeness and skills of transferring what they learn into life. Semantic links to be established by a student, who is an active member of the learning process, between the concepts he/she already knows and those he/she learns newly may contribute to the effectiveness of the process (Regis 1996, cited in Cayci 2003: 22).

According to Mayer (1987; cited in Ozdes 2013), misconception occurs when a student interprets a concept that is difficult to understand based on his/her own perspective differently from the way it is accepted by scientists. Misconceptions may have a negative effect on the future learning of students. Thus, it can be argued that investigating and examining the foreknowledge of students regarding the concepts in their minds are important for effective teaching of the concepts.

Misconceptions or imperfect perceptions in the minds of students should be corrected. Therefore, the examination of the misperceptions of students by teachers has a critical importance (Ozer 1997). Every concept included in the social studies curriculum should be regenerated in the minds of individuals through keeping the same meaning so that the objective of the social studies course is achieved (Tasli 2005). The basic concepts included in the social studies curriculum should be conveyed to students accurately in the primary school period in order for them to use them in their social studies education in the

rest of their lives. The importance of primary school social studies education is understood more clearly when it is considered as the basis of other future courses of both primary education and secondary education years.

According to Gurel and Gurdal (2002), effective teaching and learning activities depend on the foreknowledge of individuals. Ausebel (1968; cited in Ekiz 2001), who happens to be the first person putting forward this idea, argues that the most important factor influential on learning is what students know, and the way of teaching should be designed based on the results obtained in this matter. Teachers regard the minds of students as a blank slate and take a role to fill in this blank slate. However, the slate is not blank. To the contrary, it contains some foreknowledge and intuitions. Here, teachers fall into an important error by assuming that students may replace such existing knowledge easily (Wandersee et al. 1999).

Determining students' levels of understanding the geographical concepts included in the social studies curriculum as well as their views and misperceptions regarding such concepts are of vital importance for an effective social studies and geography education. The previous research emphasizes that students' learning geographical subjects depends on their correct and perfect acquisition of basic geographical concepts (Platten 1995). One of the main goals of the curriculum prepared by the Ministry of National Education for the social studies course is to enable students to acquire basic concepts.

The conclusive report of the 15th National Education Council proposes to arrange course subjects and teaching methods "...in such a way that information is not transferred directly, but learned; students are allowed to understand, interpret, and apply the basic concepts; and problem-solving skills and behaviors and scientific thinking habits are introduced" (Ozden 2002). In addition, it is stated that different concepts are included in the goals set for the curricula of various disciplines; and these concepts need to be acquired so that teaching objectives are accomplished (Akbas 2002). The review of textbooks shows that subjects on climatology and weather event (a geographical subject included in social studies) are covered in courses like introduction to science, science, and social studies which are taught at first and second levels of primary education. However, it is difficult to understand some concepts as they contain multiple variables, and there are close links between such variables. These concepts are called complex concepts (Cin and Ozcelik 2002). The weather event is also a complex concept as it involves many sub-concepts, and there are various links between such sub-concepts.

In recent years, there has been an increase in the studies aimed at revealing the perceptions and misconceptions of students regarding basic concepts. According to the review of the related literature, some studies have been conducted in Turkey and in other countries in order to determine the perceptions and misconceptions of students regarding the concepts of social studies (Akengin and Suer 2011; Aksoy 2013; Alimet al. 2008; Alkis 2006; Aydin 2010, 2011; Aydin and Unaldi 2010; Bradbeer et al. 2004; Coskun 2010; Cepni 2013; Demirkaya and Tokcan 2007; Karakus and Kilicoglu 2012; Kilicoglu 2011; Walshe 2007). The findings obtained from these studies point out that students generally have some difficulties in understanding abstract geographical subjects as well as misconceptions in such subjects.

The Purpose of the Study

Based on the above-mentioned discussions, it is reasonable to suggest that there is a need for further studies and in-depth examination of the perceptions and misconceptions of students on geographic concepts by using different data collection tools (metaphors, pictures or cartoons). The present study was intended to contribute to filling this gap. Thus, the current study aims at determining the perceptions of sixth grade students on the concept of weather event included in the 4thand 5th grade social science programs.It also is an exposition of scientific ideas as the student develops critical thinking attitude to find a cause-effect of weather instead of swallowing what he/she is told.

METHODOLOGY

The phenomenological design was employed in the present study, which was conducted in order to determine the perceptions of primary school sixth grade students regarding the concept of weather event included in the 4th and 5th grade social studies curriculum. This study employed such qualitative research techniques as

collection of data via metaphors and document analysis together in order to determine the perceptions of the sixth grade students concerning the concept of weather event in the spring semester of the 2012-2013 academic year in the central district of Karabuk Province. In this regard, the present study was suitable for triangulation, which involves the use of different methods for research. One example of triangulation is the collective use of interview, observation, and document analysis for determining a change. The sameness or the similarity of the findings obtained from all methods indicates the validity of the findings (Guion 2002).

Study Group

The typical case sampling, and a purposeful sampling method, was employed in the present study. The randomly selected study group consisted of 242 6th grade students attending different schools located in the central district of Karabuk Province in the spring semester of the 2012-2013 academic year who were voluntary to participate in the study. The study group was composed of 105 male students and 137 female students.

Data Collection Tools

In attempting to describe the meanings attributed by the sixth grade students to the concept of weather event in a detailed manner and as they were, the present study employed the below-mentioned data collection tools:

1. Form for Collecting Data via Metaphors: The form for collecting data via metaphors was used for allowing the participants to produce metaphors about the meanings they attributed to the concept of weather event, which is a geographical subject. The use of metaphors as a qualitative data collection technique is about its descriptive role. The studies of giving metaphors a central position are not much different from individuals or focus group interviews based on open-ended questions in terms of process. However, collecting data via metaphors is easier and more practical than the above-mentioned. Besides such convenience, metaphors provide a strong and rich visual image with respect to the subject, phenomenon, event, and situation under examination (Yildirim and Simsek 2006).

2. Document Analysis: The participants were asked to draw pictures/cartoons depicting the concept of weather event, about which they also created metaphors. The images drawn by the participants were used as another data collection tool. According to Yildirim and Simsek (2006), not only written materials but also visual materials are included in document analysis within the scope of qualitative research and can be used in qualitative research. These kinds of materials can be used either as a data source on their own or as an additional data source along with such data collection methods as observation, interview, and document analysis.

Data Analysis

Content analysis and document analysis were used for analyzing the collected data. Content analysis is a technique which allows working on human behaviors indirectly and is used in the field of social sciences frequently (Buyukozturk et al. 2010). Content analysis is not only a tool or technique of description. To the contrary, it is a method for searching certain dimensions of social reality through inference. Thus, it can be said that content analysis is a selective, classifying, and quantifying methodand an essential component of ensuring data integrity is the accurate and appropriate analysis of research findings.

Data Collection and Evaluation

A form containing the sentence, "Weather event... is like... This is because; ..." and a blank sheet of paper was given to every participant in order to determine their perceptions regarding the concept of weather event. The participants were firstly asked to fill in the blanks in the sentence, "Weather event is like... This is because; ..." Then they were requested to draw a cartoon/picture about the concept of weather event on the blank sheet of paper provided. One hour course was granted to the participants in order for them to create a metaphor about the concept of weather event and to draw a picture/cartoon about the metaphor they had created. The analysis and the interpretation stages of the metaphors created by the participants were arranged by considering Saban (2009). The data were analyzed and interpreted at the following five stages:

Coding and Eliminating Stage

At this stage, firstly the metaphors created by the participants were arranged in an alpha-

betical order, thereby producing a list of metaphors. It was examined whether or not the metaphors had been expressed clearly in the papers of the participants. The metaphors expressed by the participants in the forms were coded. The forms in which no metaphor was created, the forms in which there was a metaphor without any justification for it, and the forms containing explanations about the concept of weather event were marked. Due to the above-mentioned reasons, the forms involving statements like "*I think weather event takes place in the atmosphere* …" put forward by 81 participants, the forms involving statements like "*Weather event is like the wind starting to blow. This is because; weather event takes place when the wind starts to blow*" put forward by 74 participants, and the forms left blank by 32 participants (a total of 187 forms) were eliminated and left out of the study.

The pictures/cartoons drawn by the participants with regard the metaphors they had created were subjected to elimination in terms of clarity, the way the metaphor used was reflected and the relevant reason.

Sample Metaphor Compilation Stage

At this stage, each metaphor was broken into pieces through "metaphor analysis" (Saban 2009) and "content analysis" (Yildirim and Simsek 2005). The metaphors written by the participants were read again and reviewed, and (1) the thing resembling, (2) the thing it is considered to resemble, and (3) the relation between the thing resembling and the thing it is considered to resemble were analyzed in each metaphor. After the forms containing weak mental images were eliminated, a total of 34 valid metaphors were obtained from 55 participants. After elimination, compilation, and validation steps, the number of metaphors in the forms with respect to the concept of weather event is presented in Table 1.

Table 1: The number of metaphors in the forms concerning the concept of weather event after elimination, compilation, and validation steps

Form status	*Total*
Blank	32
Invalid	155
Valid	34
Total	221

Category Development Stage

At this stage, each metaphor developed by the participants with regard to the concept of weather event was categorized based on the reason for the creation of such metaphor. In this way, the metaphors developed by the participants in regard to the concept of weather event were divided into 5 different categories by their reasons.

Validity and Reliability Stage

An expert's opinion was taken into consideration in order to determine whether the metaphors included in 6 conceptual categories reached in the study represented such categories in order to ensure the reliability of the study. The lists of metaphors formed by the researchers and the lists containing the above-mentioned conceptual categories were examined by the expert. Then the matches of the expert and the categories produced by the researchers were compared. The reliability of the study was calculated through Miles and Huberman's (1994) formula (i.e. number of agreements / total number of agreements plus disagreements) by determining the number of agreements and the number of disagreements in comparisons.

In qualitative research, the desired level of reliability is achieved when the concordance between the evaluations of expert and researcher is not less than 90% (Saban 2009). In the present study, the consulted expert matched 4 metaphors (*feelings and thoughts – the 2nd category; and facial expressions – the1st category*) with different categories, and thus a reliability (concordance) of 94% (Reliability = 34 / (34 + 2) = 0.94) was obtained.

Data Transfer into Computer Environment Stage

After 34 metaphors created by the participants were divided into 5 categories, all data were transferred into a computer environment. After these procedures were completed, the number (f) and percentage (%) of the participants representing 34 metaphors and 5 categories were calculated. To explain the metaphor categories produced along with these calculation tables, the statements indicating the reasons for the creation of relevant metaphors by the participants were placed in the section of findings exactly as

they were. The codes belonging to the participants (15, F.S [Female Student]; 179, M.S [Male Student] etc.) were used in such placement. Then pictures/cartoons drawn by the participants and subjected to elimination beforehand were also placed in the section of findings in order to support both the metaphors created by the participants and the reasons for such metaphors.

FINDINGS

The metaphors produced by the participants regarding the concept of weather event are given in Table 2. The participants produced 34 metaphors with regard to the concept of weather event (Table 2). More than half of the produced metaphors (n = 27) are represented by only one participant. The remaining 7 metaphors are represented by 2 to 6 participants. The average number of participants per metaphor is approximately 1.6. The frequency distribution of the metaphors compared to the concept of weather event shows that the most frequently used metaphors are "teacher" (f = 6), "our feelings" (f = 5), and "human being" (f = 5).

The metaphors produced by the participants with regard to the concept of weather event were divided into 5 conceptual categories by their common features. Each metaphor was categorized based on the reason for producing it as stated by the participants. The categories of metaphors held by the participants regarding the concept of weather event are shown in Table 3.

Category 1: Changing Depending on the Conditions

The category 1 (Table 3) consists of 10 metaphors and 19 participants (10.45%). The frequency distribution of the metaphors included in this category demonstrates that the most frequently used metaphors are "teacher" (f = 5), "air-conditioner" (f = 4), and "our feelings" (f = 3). The reasons some participants used metaphors which belong to the category of "*changing depending on the conditions*" are given below. Furthermore, sample cartoons drawn by different participants in relation to the first category titled "*changing depending on the conditions*" are presented in Figure 1, 2, and 3.

"*Weather event is like ateacher. This is because; he/she becomes sunny when he/she desires, or he/she becomes rainy when he/she desires. He/she flashes when he/she is angry.*" (13, F.S.).

"*Weather event is like an air-conditioner. This is because; an air-conditioner sometimes cools and sometimes heats. The cold weather given by it makes people ill. In my opinion, that is true for weather event, too. Remember Tsunami! It bulldozed through people.*" (222, F.S.)

Table 2: The metaphors produced by the participants regarding the concept of weather event

Item No.	*Metaphor*	*(f)*	*%*	*Item No.*	*Metaphor*	*(f)*	*%*
1	Children at the age of 1 to 2	1	0.55	18	Hypocrite	1	0.55
2	Tree	1	0.55	19	Human being	5	2.75
3	Mother and child	1	0.55	20	Girls	1	0.55
4	Car accident	1	0.55	21	Air conditioner	4	2.20
5	Moon	1	0.55	22	Angel and devil	1	0.55
6	Father	1	0.55	23	Seasons	1	0.55
7	Metamorphosis	1	0.55	24	School bag	1	0.55
8	Feelings of a young person	1	0.55	25	Teacher	6	3.30
9	Stock exchange	3	1.65	26	A temperamental person	1	0.55
10	Chameleon	2	1.10	27	Exam marks	1	0.55
11	Monster	1	0.55	28	A child leaving an exam	1	0.55
12	Living being	1	0.55	29	Students of the class	1	0.55
13	Children	1	0.55	30	Stove	1	0.55
14	A rotating wheel	1	0.55	31	Wild animal	1	0.55
15	Our feelings	5	2.75	32	A new born baby	1	0.55
16	Child in the adolescence period	1	0.55	33	Manager	3	1.65
17	Different courses	1	0.55	34	Facial expressions	1	0.55
					Total	55	100

Table 3: The categories of metaphors held by the participants regarding the concept of weather event

Item No.	*Category name*	*Metaphor*	*The number of metaphors*	*Total metaphors*
1	Changing depending on the conditions	Our feelings, hypocrite, human beings, air-conditioner, school bag, teacher, exam marks, a child leaving an exam, stove, facial expressions	10	19
2	Involving uncertainties	Children at the age of 1 to 2, car accident, metamorphosis, the feelings of a young person, stock exchange, children, feelings and thoughts, child in the adolescence period, human feelings, human beings, girls, angel and devil, a temperamental person, students of the class, a new born baby	15	18
3	Continuous	Tree, moon, chameleon, living being, a rotating wheel, different courses, human being, seasons	8	10
4	Fearsome	Mother and child, father, monster, teacher, wild animal	5	5
5	Having rules	Manager	1	3

"Weather event is like ourfeelings. This is because; it thunders, flashes, and rains just as I frown, shout, and cry when I get angry." (113, M.S.).

"Weather event is like a ***hypocrite****. This is because; when it rains in Turkey, storm and whirlwind destroy the roofs of buildings in Turkey. However, it becomes sunny in New York at the same period. It is like hypocrisy. A hypocrite smiles on us, but rumors about us when he/she is with others."* **(232, M.S.).**

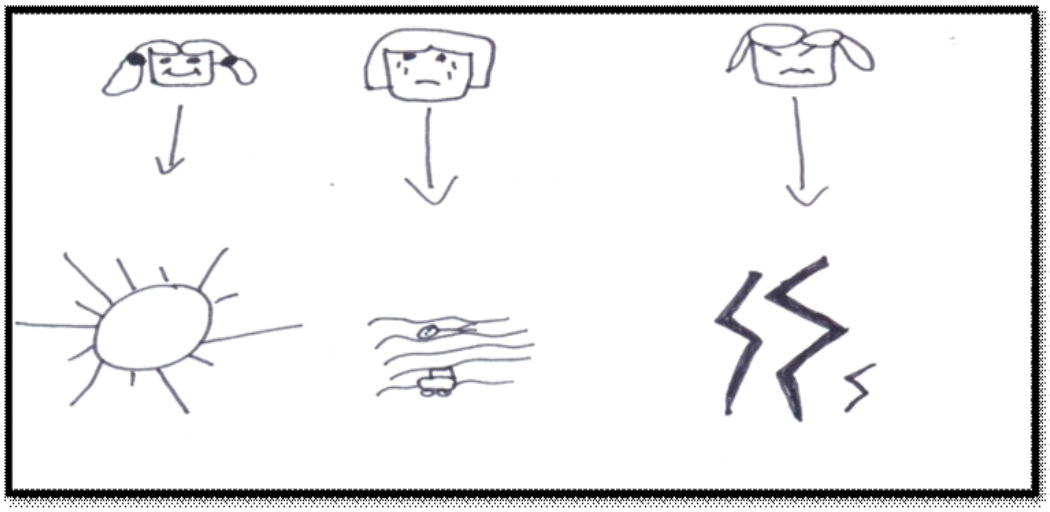

Fig. 1. Sample cartoon drawn by one of the participants who metaphorized the weather event as *"air-conditioner"* (222, F.S.).

Fig. 2. Sample cartoon drawn by one of the participants who metaphorized the weather event as "*our feelings*" (113, M.S.).

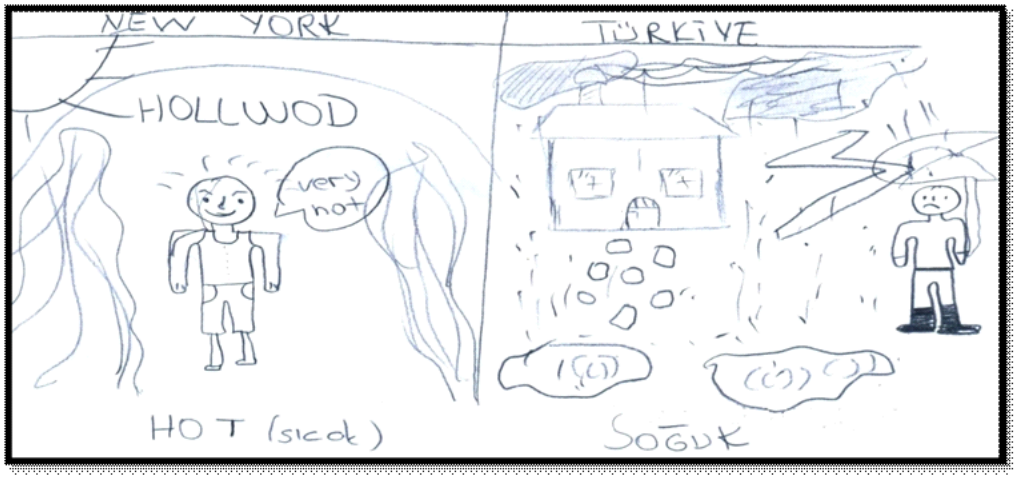

Fig. 3. Sample cartoon drawn by one of the participants who metaphorized the weather event as "*hypocrite*" (232, M.S.).

Category 2: Involving Uncertainties

According to the Table 3, the category 2 consists of 15 metaphors and 18 participants (9.90%). The frequency distribution of the metaphors included in this category reveals that the most frequently used metaphors are "stock exchange" (f = 5) and "human beings" (f = 2). The reasons some participants used metaphors which belong to the category of "*involving uncertainties*" are given below. Furthermore, Figure 4 and 5 present sample cartoons drawn by different participants in relation to the second category titled "*involving uncertainties*".

"*Weather event is like stock exchange. This is because; it turns bad and rains or becomes sunny all of a sudden. That is true for stock exchange too, because It goes down and up all of a sudden.*" (23, F.S.).

"*Weather event is like human beings. This is because; you do not know when they will change. Your best friend may be your enemy.*" (110, M.S.).

Category 3: Continuous

According to the Table 3, the category 3 consists of 8 metaphors and 11 participants (5.50%).

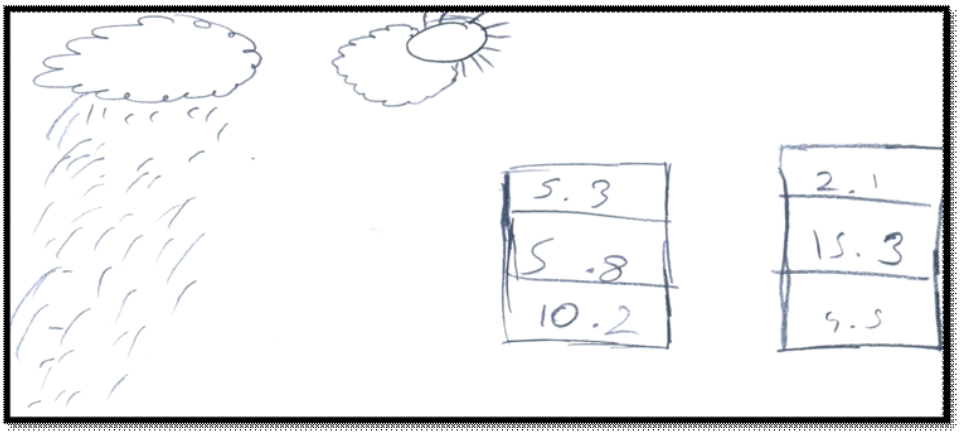

Fig. 4. Sample cartoon drawn by one of the participants who metaphorized the weather event as "*stock exchange*" (23, F.S.).

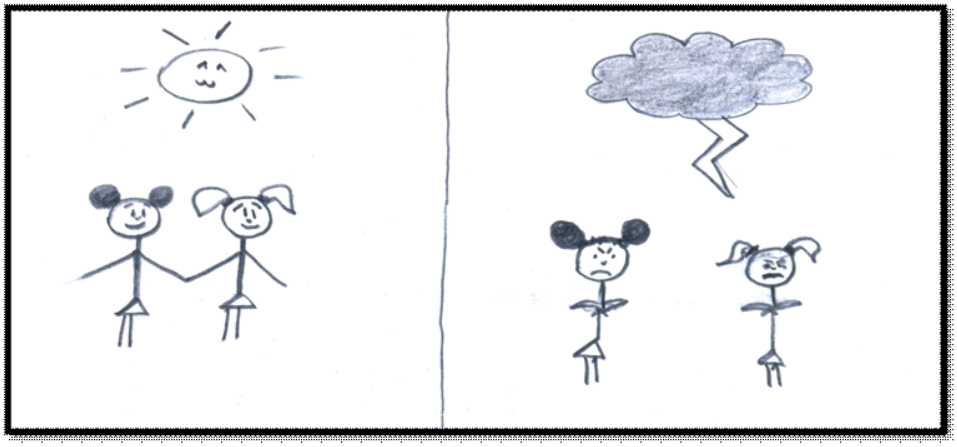

Fig. 5. Sample cartoon drawn by one of the participants who metaphorized the weather event as "*human beings*" (110, M.S.).

The frequency distribution of the metaphors included in this category demonstrates that the most frequently used metaphors are "chameleon" (f = 2) and "human beings" (f = 2). The reasons some participants used metaphors which belong to the category of "*continuous*" are given below. In addition, Figure 6 presents a sample cartoon drawn by one participant in relation to the third category titled "*continuous*".

"*Weather event is like human beings. This is because; the facial expressions of human beings change. They get surprised, happy, sad, or excited. Weather event changes, too. It rains, snows, hails, mists, or becomes sunny...*" (188, M.S.).

"*Weather event is like* ***chameleon****. This is because; it always changes color. Weather event is like that, too. It rains and later, it becomes sunny.*" **(174, F.S.).**

Category 4: Fearsome

As presented in Table 3, the category 4 consists of 5 metaphors and 5 participants (2.75%). The frequency distribution of the metaphors included in this category demonstrates that each metaphor is represented by one participant. The reasons some participants used metaphors which belong to the category of "*fearsome*" are given

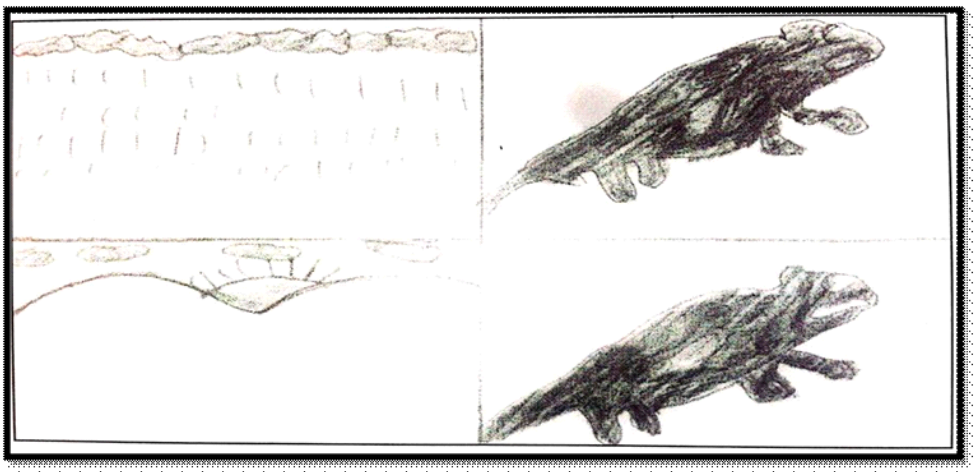

Fig. 6. Sample cartoon drawn by one of the participants who metaphorized the weather event as "*chameleon*" (174, F.S.).

below. Figure 7 also presents a sample cartoon drawn by one of the participants in relation to the fourth category titled "*fearsome*".

"*Weather event is like a teacher. This is because; he/she is like a flash when he/she is angry.*" (139, M.S.).

Category 5: Having Rules

According to the Table 3, the category 5 consists of 1 metaphor and 3 participants (1.65%). The frequency distribution of the metaphors included in this category demonstrates that each metaphor is represented by one participant. The reason for why one of the participants produced the metaphor of the category "*having rules*" is provided below.

"*Weather event is like a manager. This is because; weather events like storm, snow, and rain determine what people wear and when they wear it. Managers do that, too. They inspect people in terms of dressing and make decisions about it, and you cannot oppose them.*" (26, F.S.).

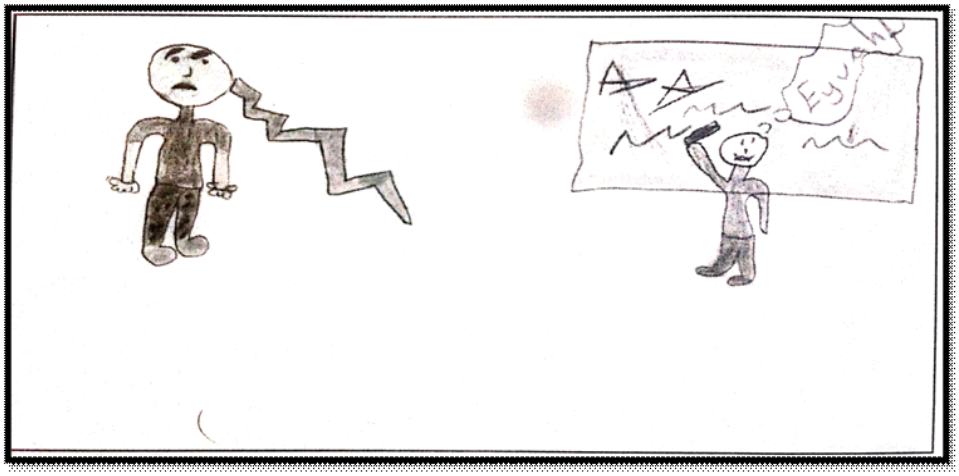

Fig. 7. Sample cartoon drawn by one of the participants who metaphorized the weather event as "*teacher*" (139, M.S.).

DISCUSSION

This study was conducted to reveal the perceptions of the primary school 6th grade students regarding the concept of weather event via metaphors and pictures/cartoons and to divide such metaphors into specific conceptual categories. The findings of the present study drew attention to some important matters.

Many metaphors are needed to explain the concept of weather event as a whole. In the present study, the participants produced 34 valid metaphors on the concept of weather event (*Chameleon*, *Angle and Devil*, *Exam Marks*, *A Temperamental Person*, *A Rotating Wheel*, *Our Feelings*, *Hypocrite*, *Girls*, *The Feelings of a Young Person*, *etc.*). That indicates that the concept of weather eventcannot be expressed by a single metaphor as a whole. A similar result was obtained by Aydin (2010) in which secondary education students participated (geographical metaphors). Some other metaphor studies conducted with regard to some other concepts or phenomena report similar results, too. For example, amongst such metaphor studies are: Aydin (2011) who talked about the concept of "environment", Ozderet al. (2012) who talked about the concept of "tourism", Coskun (2011) who talked about the concept of "climate", and Aksoy (2013) who talked about the concept of "metaphor" showed that the participants produced many metaphors in regard to the related concepts or phenomena.

The examination of the metaphors produced by the participants in regard to the concept of weather event, the metaphor categories created based on that, and the pictures/cartoons drawn by the participants *(24, MS - 113, FS)* indicated that a great majority of the participants perceived weather event as "*changing depending on the conditions*", "*involving uncertainties*", and" *continuous*". Weather event is the name given to such meteorological events occurring in the atmosphere as rain, humidity, wind, and temperature. The examination of the mental images created by the participants in relation to the concept of weather event demonstrated that the mostly preferred images were *teacher (f = 6), our feelings (f = 5), human being (f = 5), air-conditioner (f = 4),* and *stock exchange (f = 3)*. The fact that the metaphors produced by the students with regard to the concept of weather eventdo not completely correspond to the definitions of weather event in the literature may be as a result of lack of knowledge about the concept among the students. Many factors may have been responsible for the perception of the concept of weather event by the students in the study group (teacher's competence, curricula, textbooks, social environment, students' levels of interest, visual/written media…). For instance, because of the teacher factor, geographical subjects are taught to students by primary school teachers at the first level of primary education (1st to 5th grades), by social studies teachers at the second level of primary education (6th to 7th grades), and by geography teachers in the secondary education. Therefore, teachers need to have adequate knowledge and experience in the field of geography.

It was seen that the students confused weather event with weather condition and climate and therefore attributed the properties ofweather event to weather condition, climate and the properties of weather condition such as climate to weather event. Basibuyuk et al. (2004) conducted a study on university students, by asking the question "what is climate" to the students, and concluded that the students associated climate with weather condition and weather event. In addition, Alim et al. (2008) carried out a study to examine primary school 5th grade level students' on understanding some geographical concepts, by asking the question "what is climate" to the students, and concluded that some students perceived climate, weather condition, and weather event as the same.

It was realized that the students had some deficiencies and misconceptions concerning the concept of weather event. Moreover, it was determined that metaphors and pictures/cartoons created by primary school students could be used as a strong research tool for understanding, revealing, and explaining the perceptions of such students regarding the concept of weather event. Some geographical concepts are abstract and difficult to understand. Examples of such concept such as high pressure, low pressure, relative humidity, absolute humidity, and specific humidity are also related to the subject of climate (Aydin 2010). Metaphors may be used for enabling students to understand these concepts correctly. The findings obtained from the metaphors on the concept of weather event may provide a perspective for readdressing geography textbooks, curricula, and teaching processes.

CONCLUSION

Results of the current study revealed that the participants of the study produced 34 valid metaphors related to the concept of weather event. Results also showed that the most preferred mental image by participants as related to the weather event was teacher. It was also clear from the results that the students were confused about the meanings of weather event, weather condition, and climate. Finally, results illustrated that students had a number of deficiencies and misconceptions about the concept of weather event.

RECOMMENDATIONS

The present study may fill an important gap in the literature as it is the first study in Turkey aimed at revealing the perceptions and misconceptions of students regarding the concept of weather event. This study also provides important clues for educators from any educational level to understand the background of students which enables them to prepare lessons to teach the concept of weather event to them. Future studies may focus on revealing the perceptions and misconceptions of secondary education on university students relative to the concept of weather event. Further studies should also focus on investigating the reasons for the factors that lead students to these misconceptions. Results of the current study revealed that students had some misconceptions about the concept of the weather event. Therefore, these misconceptions should be removed before teaching concepts. Metaphors can be used as a powerful tool for understanding and explaining students' perceptions of geographic concepts. Thus, findings of this study on the metaphors that students produced with respect to the weather concept may provide an alternative perspective to the weather event concept included in the social sciences program. The findings of the present study may be considered significant because they reveal the perceptions of the research participants on the concept of weather event.

REFERENCES

Akbas Yavuz 2002. *Secondary 6th Grade Students Understanding Level of Geographical Concepts and Their Misconceptions.* Master Thesis, Unpublished. Trabzon: Karadeniz Teknik University.

Akengin H, Suer S 2011. An experimental research on the readiness levels of students in terms of geographical concepts and development of these concepts. *Marmara Geographical* Review, 7(24): 26-48.

Alim M, Ozdemir U, Yilar B 2008. 5th grade level students' on understanding and misunderstanding some geographical concepts. *Journal of Graduate School of Social Sciences*, 11(1): 151-162.

Alkis Secil 2006. *A Study on Primary School Students' Perceptions on the Concept of Raining.* Ph. D. Thesis, Unpublished. Bursa: Uludag University.

Aydin F, Unaldi UE 2010. The analysis of geography teacher candidates' perceptions towards "geography" concept with the help of metaphors. *International Online Journal of Educational Sciences*, 2(2): 600-622.

Aydin F 2010. Secondary school students' metaphors about the geography concept. *Educational Sciences: Theory and Practice*, 10(3): 1313-1322.

Aydin F 2011. The metaphoric perceptions of university students towards environmental concept. *Eastern Geographical Review*, 26: 25-44.

Beydogan Ö 1998. *Cocuklarda Kavram Ogrenmeve Kavram Ogretme* [Children's learning concepts and teaching concepts to children]. Erzurum: Atatürk University Kâzim Karabekir Faculty of Education Press.

Bradbeer J, Healey M, Kneale P 2004. Undergraduate geographers' understandings of geography, learning and teaching: A phenomenographic study, *Journal of Geography in Higher Education*, 28(1): 17-34.

Buyukozturk S, Kilic Cakmak E, Akgun OE, Karadeniz S, Demirel F 2010. *Bilimsel Arastirma Yontemleri* [*Scientific Research Methods.*7th Edition. Ankara: Pegem Akademi.

Cayci Baris 2003. *The Comparison of Primary School (4. and 5. class) Student Attitudes of Science Lessons With Finding Out Level of the Concepts in the Unit Çevremizi Taniyalim*. Master Thesis, Unpublished. Ankara: Gazi University.

Cepni Osman 2013. *Examining Students' Perceptions on Geography Concepts in Social Science Teaching Program.* Ph. D. Thesis, Unpublished. Ankara: Gazi University.

Cepni S, Ayas AP, Akdeniz AR, Ozmen H, Yigit N, Ayvaci HG 2005. *Kuramdan Uygulamaya Fen ve Teknolojiöðretimi* [Teaching Science and Technology from Theory to Practice]. Ankara: Pegem A.

Cin M, Ozcelik I 2002.A review of the literature on concept learning in physicalgeography. *Bogazici University Journal of Education*, 19(1): 61-75.

Coskun M 2010. Metaphors (Mental Images) of high school students about "climate" concept. *Turkish Studies International Periodical for the Languages, Literature and History of Turkish or Turkic*, 5(3): 919-940.

Demirkaya H, Tokcan H 2007. Teacher candidates understandings of climate: A phenomenographic study. *Turkish Journal of Social Studies*, 11(2): 105-118.

Ekiz D 2001. *Ilkögretimde Fen Bilimi Ogretimive Ogrenimi: Felsefi, Psikolojik Temellerive Pratiksel Uygulamalari* [Teaching and Learning Science in Elementary Education: Philosophical, Psychological Foundations and Practical Applications]. Trabzon: Derya.

Guion LA, Diehl DC, McDonald D 2002. Triangulation: Establishing the Validity of Qualitative Studies. From <http://Edis.Ifas.Ufl.Edu/Fy394> (Retrieved on 5 June 2013).

Guerrero, MCM, Villamil OS 2002. Metaphorical conceptualizations of ELS teaching and learning. *Language Teaching Research*, 6(2): 95-120.

Gurel Z, Gurdal A 2002. 7-11. Sinif ogrencilerin yercekimi konusundaki kavram yanilgilari [Misconceptions of 7-11. grade students on gravity]. *Burdur Faculty of Education Press*, 3: 42-55.

Karakus U, Kilicoglu G 2012. Level of understanding of eight-grade elementary students in Turkey with regard to geographical concepts. *International Journal of Academic Research Part B*, 4(4): 163-170.

Kaygusuz Cagla 2011. *Determining Misconceptions on the Circle of Sub-Learning Area in Primary School Fifth Class Mathematics Course Syllabus*. Master Thesis, Unpublished. Ankara: Gazi University.

Kilicoglu Gokce 2011.*The Impact of Conceptual Change Texts on Misconceptions in Social Studies Courses.* Ph. D. Thesis, Unpublished. Ankara: Gazi University.

Miles MB, Huberman AM 1994. *Qualitative Data Analysis.* 2nd Edition. Thousand Oaks, CA: SAGE.

Ozdes H 2013. *Misconceptions of 9th Class Students Regarding to Natural Numbers*. Master Thesis, Unpublished. Aydin: Adnan Menderes University.

Ozden Y 2002. *Egitimde donusum- egitimde yeni degerler* [Transformation in education - new values in education]. Ankara: Pegem.

Ozer Z 1997. Bilgi nasil yenilenir? [How is knowledge reproduced?]. *Journal of Science and Technique*, 359: 32-33.

Platten L 1995 Talking geography: An investigation into young children's understanding of geographical terms part-1. *International Journal of Early Years Education*, 3(1): 74-91.

Saban A 2009. Prospective teachers' mental images on the concept of student. *Journal of Turkish Educational Sciences*, 7(2): 281-326.

Tasli Ý 2005. 4.-7. sinif sosyal bilgiler programi uniteleri ile ilgili kavram bulmacalari ornekleri [Samples for concept puzzles related to social sciences program of 4.-7. grades]. Milli Egitim Uc Aylik Egitim ve Sosyal Bilimler Dergisi, 166. From <http://yayim.meb. gov.tr> (Retrieved on 3 September 2013).

Walshe N 2007. Understanding teachers' conceptualisations of geography. *International Research in Geographical and Environmental Education*, 16(2): 97-119.

Wandersee JH, Mintzes JJ, Novak JD 1994. Research in alternative conceptions in science: Part II Learning. In: GL Dorothy (Ed.): *Handbook of Research on Science Teaching and Learning*. New York: Macmillan Publishing, pp. 177-210.

Yildirim A, Simsek H 2011. *Sosyal bilimlerde Nitel Ara stirma Yontemleri* [*Qualitative Research Methods in Social Sciences*. 6th Edition. Ankara: Seckin.