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The Metaphorical Perceptions of Teacher Candidates on the Concept of "Web 2.0 Technology"*

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Abstract

A metaphor is the expression of a concept or a phenomenon by a person by using analogy in the sense that s/he perceives. This study was conducted for the purpose of finding the mental images (i.e. the metaphors) which social studies teacher candidates have on Web 2.0 technology. The study group consisted of 77 social science teacher candidates. The raw data, which were obtained from each of the participants by completing the "*Web2.0 technology is like ..., because ...*" statement, were analyzed by employing both quantitative and qualitative data analysis techniques. The participants of the study produced 72 valid metaphors for Web 2.0 Technology. These metaphors were then examined in terms of their common features and were collected under 43 metaphors and 10 conceptual categories. According to the results of the present study, the social science teacher candidates explained Web 2.0 technology as a toolbox that contains everything in it, reflective, has the characteristic of changing, entertaining, octopus, interesting, a robot which can perform every task, canvas and informative. As a result of the present study, the metaphors that were produced by the social studies teacher candidates might be used in the process of explaining Web 2.0 concept.

Keywords

Social Sciences; Teacher Candidate; Web 2.0 Technology; Metaphor

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In today's globalizing world, communication, which has evolved from stone walls to papyrus, from printing house to the development of postage services, and then to the use of the Internet, is the most basic method employed to transfer information among people. Following the widespread use of the Internet, keeping pace with the developments in technology has become the first task of humans of the 21st Century. On the one hand, the individual is constantly having a struggle to develop and renew himself/herself, on the other hand, s/he also has been spending efforts to consider the needs of the society which s/he lives in, and to produce new information to facilitate human life. All the needs have brought with them the development of art, social, physical and health sciences.

Social sciences constitute a science field which basically has the humans as the basic element, and has the continuity that considers human needs, physical, humane and economical features of the natural environment in which they live, its history, and cultural, social and anthropological importance. Teaching the continuity in science to all people in a planned and programmed manner is performed through education.

States educate the individuals whom they need through educational policies at schools. Educational programs in our country are prepared for this purpose, and are given as compulsory basic education. The curriculum, which will help the individual to realize his/her social existence, which will enable that s/he becomes a hardworking, productive, effective individual for his/her family and state, which will enable that s/he investigates his/her past, present and future by interacting with the social and physical environment in which s/he lives and makes correct decisions, is the social sciences course, which is a pedagogy course that takes its source from social sciences (Koçoğlu, 2016; Oğuz Haçat, 2015). Techniques that are based on seeing, observing, and implementation activities, which are required by the modern age have been used by moving away from the memorization system in social sciences courses, which aims to raise effective citizens. The use of technology in education has become inevitable because of the above mentioned needs. In social sciences classes, teachers should make use of the technology, which consists of multimedia activities for the purpose of increasing the motivation of their students, teaching their subject areas in an effective and efficient manner, making their students acquire the skills of problem-solving, decision-making, creative and critical thinking of social sciences. The more social sciences teachers keep technology as merged with social studies classes, the more they can be useful for their students (Kaya, 2008).

In this context, both social sciences teachers and teacher candidates should be able to use technology effectively. Studies conducted in this field in our country have concluded that social sciences teacher candidates have a positive attitude towards using technology in education; however, they do not see themselves sufficient in this field (Akman, 2016a; Akman, 2016b; Akman & Koçoğlu, 2016; Büyükkasap, Samancı, Dumludağ et al., 2002; Çoban & İleri, 2013; Bulut and Koçoğlu, 2012; Karakuş and Oğuz Haçat, 2013; Koçoğlu, 2017; Oğuz Haçat & Sözcü, 2016; Oğuz, 2016; Özel, 2014; Özer & Albayrak Özer, 2017; Öztürk, 2006; Tarman & Baytak, 2011; Yılmaz & Ayaydın, 2015). To eliminate this missing point, courses that are intended to improve the use of technology should be provided to social sciences teacher candidates during their undergraduate educations.

In the context of developing technologies, the components included within the educational environments should also be included in some kind of change. As one of these components, it is expected that the teachers, should include the related technological developments in the context of educational activities they perform. For this purpose, several planning processes are carried out in many countries of the world to include technology in schools. When this case is considered for Turkey, various applications carried out in the context of the Fatih Project in learning and teaching processes to increase the functioning of technology integration in schools (MEB, 2018). There are various components in this project, and the web-based applications developed are foreseen to support the activities in the education and training processes (Yıldız, Sarıtepeci & Seferoğlu, 2013). When considered in this context, it is expected that the teachers, who have the role of being practitioners, will include technological facilities in their activities.

In including educational technology in education and training processes, the knowledge and skills which teacher candidates have at the point of making use of the technology have an important role. For this purpose, several lessons that have technological contents must be provided in the context of pre-service teacher education (Admiraal et al., 2017, Göktaş, Yıldırım & Yıldırım, 2008, Polly, Mims, Shepherd & Inan, 2010; Tondeur et al., 2012). With the trainings that will be included in these classes, it is aimed that teacher candidates become able to make use of the opportunities more efficiently and in a productive manner by differentiating their tendencies to developing technologies. In the context of the developing technologies, several Web 2.0-based trainings are carried out with teacher candidates in teacher education processes in recent years (Baltacı-Göktalay & Özdilek, 2010; Peterson-Ahmad, Stepp & Somerville, 2018). It is possible to consider Web2.0 Technologies as user-friendly next-generation Internet tools in which the contents can be stored and shared with communication and interaction (Ajjan & Hartshorne, 2008; Anderson, 2007; D'Souza, 2006; O'Reilly, 2007; Thompson, 2007). Web 2.0 applications provide us with various opportunities and great facilities in the teaching and learning processes with the ease of use, effective collaboration and communication support in the context of training activities (Adcock & Bolick, 2011; Alexander, 2006). With these justifications, we believe that it is necessary to carry out the trainings in the form of Web2.0 based content development activities in the scope of technology education programs in the pre-service teacher training processes.

For the purpose of using Web 2.0 technology in education, it is necessary to know it. In this study, answer was sought for the question "What are the viewpoints of social science teacher candidates on Web 2.0 technology". For the purpose of reaching the sincere answers to this question, the desire in the present study was to reveal the perceptions of social science teacher candidates on Web 2.0 technologies in their minds. Metaphors are the words which are used to liken a concept to another concept. Eraslan (2011) reported that a metaphor was the label, meaning or conceptual expressions that a concept created in the individual, and that it consists of the experiences of the individual about the relevant concept.

When the literature was examined, it was observed that there are a lot of studies conducted on social sciences education and metaphor development (Özbas, 2012; Kocadağ Ünver, Aksoy & Zengin, 2014; Koçoğlu & Kaya, 2016; Akman, Özeren & Yiğen, 2017, Ulu Kalın & Koçoğlu, 2017). In addition, metaphorical studies were conducted with different study groups on the internet and technology concepts (Erdoğan & Gök, 2008; Çoklar & Bağcı, 2010; Aşkım Kurt & Özer, 2013; Şahin & Baturay, 2013; Fidan, 2014; Karaçam & Aydın, 2014; Ergen & Yanpar Yelken, 2015; Korkmaz & Ünsal, 2016). However, it was also observed that there were no studies in the literature conducted on the metaphorical perceptions of social sciences teacher candidates on Web 2.0 technology. Considering the importance of Web 2.0 tools in the context of education settings it is aimed to conduct a study to reveal the perceptions of social sciences teacher candidates as metaphorical conceptions. Based on this aim, following research question were tried to be solved:

- What metaphorical perceptions do social sciences teacher candidates have to describe Web 2.0 technology?

Methodology

Research Design

It was considered proper to use the Phenomenology Design, which in one of the Qualitative Research Methods, to reveal the differences between the meanings of the social studies teacher candidates on Web 2.0 concept. The Phenomenology Design focuses on the phenomena which we are aware of; however, we do not have a detailed insight. Phenomena appear in various forms such as events, experiences, perceptions, orientations, concepts and situations in the world we live in. However, this familiarity does not mean that we understand the phenomena fully. The Phenomenology Design provides us with proper research ground in studies that are not totally strange to us, but also, we cannot fully understand (Yıldırım & Şimşek, 2008).

Participants

The study was conducted with the participation of a total of 77 teacher candidates who received Computer Literacy II course in the 1st year in Social Sciences Teaching Department, at the Faculty of Education of Artvin Çoruh University, in 2016-2017 academic term. Depending on their inexperience situation, initial trainings were provided on scheduled course hours to the teacher candidates on Web 2.0 tools as Blogger, Drive, Pawtoon, Prezi and Canva about their features and how they could benefit in educational settings.

Data Collection

In the context of the study, the teacher candidates were given an empty paper saying "Web 2.0 is like ....., because ....."; and were asked to express their viewpoints only by using this statement by concentrating on only one metaphor.

Data Analysis

The obtained data were analyzed by the Content Analysis Method. The main goal in the Content Analysis is to reach the concepts and relations, which may explain the data collected in the scope of the study. The data which are summarized and interpreted in the Descriptive Analysis are subjected to a deeper process in the Content Analysis; and concepts and themes that are not recognized by the Descriptive Analysis may be discovered in this analysis (Yıldırım & Şimşek, 2008). The interpretation of the data was carried out in 4 stages:

The naming stage. Firstly, a temporary list in alphabetical order was made to show the metaphors made by the teacher candidates.

Classification (elimination and purification) stage. In this stage, each metaphor was re-examined, and the relation between the subject of the metaphor, its source, and the source of it were analyzed. Not all the students who participated in the study were able to produce valid metaphors. The pieces of paper that did not contain any source of metaphors, those that did not provide any justification, and unreasonable metaphors were excluded from the study. For example, the weakly-structured metaphors such as "Web 2.0 is like nothing, because nothing came to my mind" and metaphors that had multiple categorical features like "Web 2.0 is like difficult, because it is not easy" were excluded from the analyses. As a result of this elimination, a total of 72 valid metaphors were obtained.

Category development stage. In this stage, the metaphors that were developed by the participants for each metaphor were examined in terms of their common features. The metaphors, which were developed by the social studies teacher candidates for the "Web 2.0" concept, were classified under 10 different categories (Web 2.0 as a toolbox, Web 2.0 as a reflector, Web 2.0 as a change element, Web 2.0 as an entertainment, Web 2.0 as an interesting element, Web 2.0 as a robot, Web 2.0 as an informative element, Web 2.0 as a canvas, Web 2.0 as an octopus, and others). The reason why some of the same metaphors are gathered in different categories is that the explanation of that metaphor is proper for the relevant category.

Ensuring the validity and reliability stage. Since the metaphors, which were written by teacher candidates who participated in the study, were used directly as the basic data source in the present study, the study is valid. As a result of the study, 35 metaphors, 7 different categories, frequency (f) and percentages (%) were tabulated and transferred to the computer medium. The reliability of the study was computed by the formula of Miles and Huberman (1994) (Reliability = Consensus/Consensus + Disagreement). In qualitative studies, it is expected that the agreement between expert and researcher evaluations is over 90% (Saban, 2008).

The metaphors formed in the present study were classified into 2 categories by two researchers, and then the categorical lists that were obtained in this way were compared. For each category and each metaphor, the agreement between the researchers was discussed to be 100%; and categorized metaphor lists were formed.

Findings

The metaphors developed by teacher candidates in line with the purpose of the present study and the conceptual categories of these metaphors are given in Table-1.

Table 1
The Metaphors Developed By Social Sciences Teacher Candidates on Web 2.0 Technology, And the Number of the Students That Represent Them (N: 72)

The metaphor formed	Frequency	The metaphor formed	Frequency
Cartoons	7	John Loggie Baird	1
Chameleon	5	Ant	1
Tree	4	Cartoon	1
Human	4	Catalog	1
Puppet	3	Lost notification	1
Teacher	3	Coursebook	1
Camera	2	Nature	1
Newspaper	2	Electronic device	1
Rainbow	2	Roulette wheel	1
Book	2	Billboard	1
Miracle	2	Camomile	1
Art	2	Window	1
Robot	2	Artvin	1
Theater stage	2	Atatürk	1
Soil	2	Cinema poster	1
Galaxy	1	Tableau	1
Inviter	1	Designer	1
Octopus	1	Telephone	1
Sky	1	Poster wall	1
Servant	1	Tree leaf	1
English class	1	Compulsory language classes	1
Mother	1		

The valid 43 metaphors, which were produced by social sciences teacher candidates on Web 2.0 technology, and frequency values are given in Table 1. 7 of the teacher candidates who participated in the study explained Web 2.0 technology with the "cartoons" concept. In addition, 5 teacher candidates explained Web 2.0 technology with the "chameleon" concept. The metaphors whose frequency count was 4 were "tree" and "human"; those with frequency count 3 were "puppet" and "teacher"; those with frequency count 2 were "camera, newspaper, rainbow, book, miracle, art, robot, theater stage" and "soil" metaphors. The "galaxy, inviter, octopus, sky, servant, English class, mother, John Loggie Baird, ant, cartoon, catalog, lost notification, coursebook, nature, electronic device, roulette wheel, billboard, Camomile, window, Artvin, Atatürk, cinema poster, tableau, designer, telephone, poster wall, tree leaf" and "compulsory language classes" metaphors that were produced by the teacher candidates in the study had "1" frequency value.

Table 2
The Metaphorical Categories on Web 2.0 Concept

Conceptual category	Metaphor	f	Conceptual category	Metaphor	f	Conceptual category	Metaphor	f
Web 2.0 as a teamwork	Servant	1	Web 2.0 as an entertainer	Cartoons	4	Web 2.0 as an informative element	Teacher	2
	Catalog	1		Cartoon	1		Human	1
	Galaxy	1		Sky	1		Tree	1
	Coursebook	1		Roulette wheel	1		Book	1
	Chameleon	1		Chameleon	1	Web 2.0 as a canvas	Theater stage	2
	Soil	1	Web 2.0 as an interesting element	Rainbow	2	Other	English class	1
	Book	1		Newspaper	2			1
	Telephone	1		Cinema poster	1			1
Web 2.0 As a reflector	Camera	2		Lost notification	1		Inviter	1
	Art	1		Billboard	1		Atatürk	1
	Tableau	1		Poster wall	1		John Loggie Baird	1
	Artvin	1		Book	1		Art book	1
	Window	1		Nature	1		Compulsory language classes	1
	Television	1	Web 2.0 as a robot	Puppet	3		Tree leaf	1
	Ant	1		Human	2		Electronic device	1
Web 2.0 as an element of	Chameleon	3		Robot	2	Web 2.0 as an octopus	Octopus	1
	Tree	3		Designer	1			
	Soil	1		Miracle	1		Camomile	1
	Human	1		Mother	1			
				Teacher	1			
				Cartoons	1			

The metaphor categories of the social sciences teacher candidates on Web 2.0 concept are given in Table 2. The existing categories and frequency values are as follows:

Conceptual Categories

Category 1. web 2.0 as a teamwork. The feature that comes to the forefront in the metaphors (servant, catalog, galaxy, coursebook, chameleon, soil, book, and telephone) given in the "Web 2.0 as a teamwork" category is the viewpoint of the teacher candidates that they can find everything in Web 2.0 Technology. Example of the statements of the

Sample student statements in this category are as follows:

S15. "Web 2.0 is like the galaxy, because it has a rich content and is independent."

S18. "Web 2.0 is like a book, because there is everything in it."

S10. "Web 2.0 is like the chameleon, because different things may be found in it."

Category 2. web 2.0 as a reflector. When the metaphors produced by the teacher candidates in the "Web 2.0 as a reflector" Category (camera, art, tableau, Artvin, window, television and ant) and their explanations are considered, it is understood that teacher candidates perceive Web 2.0 Technology as a reflector. Some metaphors in this category and the explanations are as follows:

S34. "Web 2.0 is like Artvin, because we can see what we want."

S59. "Web 2.0 is like the camera, because it reflects everything with visuals."

Category 3. web 2.0 as an element of change. In this category, the teacher candidates produced various metaphors by likening Web 2.0 Technology to objects that change (chameleon, tree, soil and human). The metaphors that repeat with the highest frequency were "chameleon" and "tree". The metaphors developed in this category by the teacher candidates and their explanations are as follows:

S55. "Web 2.0 is like soil, because it is productive."

S68. "Web 2.0 is like human, because it renews itself."

Category 4. web 2.0 as an octopus. Two social sciences teacher candidates who participated in the study likened Web 2.0 technology to octopus and explained their metaphor as:

S5. "Web 2.0 is like octopus, because it reaches every field."

S28. "Web 2.0 is like Camomile, because it has any type of arms."

Category 5. web 2.0 as an entertainer. The common feature of the metaphors (cartoons, cartoon, sky, roulette wheel and chameleon) in this category is that they are all intended to entertain people. Some of the metaphors developed by the teacher candidates in this category and their explanations are as follows:

S6. "Web 2.0 is like the sky, because it is like fireworks."

S45. "Web 2.0 is like cartoons, because it is entertaining and interesting."

Category 6. web 2.0 as an interesting element. The common feature of the metaphors (rainbow, newspaper, cinema poster, lost notification, billboard, poster wall, book and nature) categorized in "Web 2.0 as an interesting element" is that they are prepared to attract the attention of people. The most frequently repeated metaphors in this category are "rainbow" and "newspaper". Some of the metaphors developed by the teacher candidates in this category and their explanations are as follows:

S37. "Web 2.0 is like the nature, because there are all colors."

S11. "Web 2.0 is like the cinema and poster, because it is interesting."

Category 7. web 2.0 as a robot. In this category, the social sciences teacher candidates defined Web 2.0 technology as a robot that does what is given as a command. The common feature of the metaphors (puppet, human, robot, designer, miracle, teacher and cartoons) in this category is that it does every command and has the features that facilitates the lives of people. Some of the metaphors developed by the teacher candidates in this category and their explanations are as follows:

S22. "Web 2.0 is like a puppet, because it does what we want."

S40. "Web 2.0 is like a miracle, because it can facilitate everything in our lives."

Category 8. web 2.0 as an informative element. The common feature of the metaphors (teacher, human, tree and book) produced by the social sciences teacher candidates in this category is that they are informative. Some of the metaphors developed by the teacher candidates in this category and their explanations are as follows:

S32. "Web 2.0 is like a book, because it is of use for you when you read it."

S47. "Web 2.0 is like human, because adds new knowledge to your existing wisdom."

Category 9. web 2.0 as a canvas. The "theater stage" metaphor, which was produced by 2 social sciences teacher candidates in this category was explained as "Web 2.0 technology reflects not something that exists but reflects the things in their imaginations". Some of the metaphors developed by the teacher candidate in this category and the explanation are as follows:

S42. "Web 2.0 is like a theater stage, because it is the place where imaginations are reflected."

Category 10. other. The valid and meaningful 8 metaphors (English class, inviter, John Loggie Baird, art book, compulsory language classes, tree leaf and electronic device), which were produced by the social sciences teacher candidates could not be included in any of the categories by the researchers, and were collected in the "Other" category. Some of the metaphors developed by the teacher candidates in this category and their explanations are as follows:

S51. "Web 2.0 is like Atatürk, because it is foreseeing."

S65. "Web 2.0 is like compulsory language classes, because it is no good for anything."

Discussion

In this study, the purpose was to determine the metaphorical perceptions of the teacher candidates studying at Social Sciences Teaching Department, 1st Grade on the Web 2.0 technology after the trainings on Blogger, Drive, Pawtoon, Prezi and Canva, which they receive in the Computer Literacy II course. In order to fulfill this purpose, the data were collected and analyzed with the Content Analysis, and a total of 43 valid metaphors, which consisted of 10 conceptual categories, were obtained.

The conceptual categories and metaphors that were produced by the social sciences teacher candidates who participated in the study were: A total of 8 metaphors were produced in the Web 2.0 as a teamwork conceptual category. The produced metaphors were; servant, catalog, galaxy, coursebook, chameleon, soil, book and telephone metaphors. The metaphors in the Web 2.0 as a reflector category were; camera, art, table, Artvin, window, television and ant metaphors. The metaphors in the "Web 2.0 as an element of change" were human, soil, tree and chameleon metaphors. The conceptual category with the highest frequency was determined as "Web 2.0 category as a robot" in the study. In this category, which has a total of 11 frequency values, the metaphors that were produced were designer, puppet, robot, human, miracle, mother, teacher and cartoons. The billboard, newspaper, cinema poster, lost notification, rainbow, poster wall, book and nature metaphors were included in the "Web 2.0 technology as an interesting element". Five of the teacher candidates who participated in the study evaluated Web 2.0 technology as an informative element, and produced tree, human, teacher and book metaphors. While the sky, cartoon, cartoons, roulette wheel and chameleon metaphors were produced in the "Web 2.0 technology as an entertaining element" conceptual category, the octopus and Camomile metaphors were produced in the "Web 2.0 technology as an octopus" conceptual category; and the theater stage metaphor constitute the "Web 2.0 technology as a canvas conceptual category. In addition to these metaphors that were produced and categorized under conceptual categories, there were some other valid metaphors that were produced by 8 teacher candidates; however, these could not be included in any of the conceptual categories. These metaphors were English class, inviter, Atatürk, John Loggie Baird, art book, compulsory language classes, tree leaf and electronic device.

Since it is known that metaphors are the structures we use in our thought system and that the thought system is mostly metaphorical, metaphors are employed by individuals to express their ideas on a concept in a sincere manner. These structures may show similarities among individuals, and may also differ due to different life experiences (Köksal, 2010). In this study, a total of 7 of the teacher candidates defined Web 2.0 concept as "Cartoons". In addition to this, 28 different metaphors were obtained from 28 teacher candidates. There were also some teacher candidates who expressed the same metaphors with different explanations. For example, S13 explained the Web 2.0 Technology with "Tree" metaphors as "Web 2.0 Technology is like a tree, because it improved, if we look at it well, we learn new things" by saying that it is an informative element; S48 said "Web 2.0 Technology is like a tree, because different trees yield different fruits" and explained it as an element of change.

The present study was carried out with pre-service social science teachers. This situation is seen as the limitation of the study. To reveal detailed perspective of Web 2.0 tools in education more research should be carried out with both pre and in-service teachers in other fields.

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