



# *World Journal on Educational Technology*



Vol 2, issue 3 (2010) 186-195

[www.world-education-center.org/index.php/wjet](http://www.world-education-center.org/index.php/wjet)

## What are the roles of prospective teachers on the educational technology use: a metaphor study

Ahmet Naci Çoklar<sup>a\*</sup>, Hakkı Bağcı<sup>b</sup>

<sup>a</sup>Department of Computer Education and Instructional Technology, Ahmet Kelesoglu Faculty of Education, Selcuk University, Konya, Turkey

<sup>b</sup>Department of Computer Education and Instructional Technology, Faculty of Education, Afyonkarahisar, Turkey

Received March 17, 2010; revised September 19, 2010; accepted November 26, 2010

### Abstract

Metaphors in qualitative research methods have been used as a data collection technique, which can't be obtained directly ensure that data is obtained indirectly. In this research, the training of teachers in using technology to determine what role they are estimated at. In this context, Afyon Kocatepe University, a total of 131 teacher candidates from six different sections to the question directed at the metaphor and the data were analyzed with content analysis. Responses to the metaphor of the six different themes have been obtained: being important / useful, assistant / guide, user, producer / designer, learner and attitude. Evaluation of teacher candidates was their most important roles of the time / to be useful, help / guide and user issues have been. As a result of the analysis according to the department of prospective teachers according to the department the role they differ in their evaluation of the results have been revealed.

*Keywords:* Educational Technology, technology use of metaphor, technology in education, teachers' roles.

© 2010 Academic World Education & Research Center. All rights reserved.

---

\* Corresponding Author: Ahmet Naci Çoklar.  
E-mail address: [ahmetcoklar@selcuk.edu.tr](mailto:ahmetcoklar@selcuk.edu.tr)

## 1. INTRODUCTION

The concept of educational technology, learning about the analysis and solution of problems of the people, methods, ideas, tools, and contains a complex and integrated organization is defined as a process (Ergin, 2003). In recent times is another definition of Educational Technology AECT (Association for Educational Communications and Technology) were made by. According to this definition of educational technology to assist learning of technological processes and resources to improve performance and design, use and manage the implementation and enforcement of ethics as the purpose is to work (AECT, 2004) Definition of educational technology is examined, as well as in the general definition of technology to help people with different sizes can be understood as consisting of a systematic process. Viewed from this angle overhead projector, computer, data projector, to define the concept of educational technology, such as tools, instead of representing the size of educational technology tools that can be seen as a technological product. In Turkey, during the license period, the training of teachers in technology education is important. Especially, the "Instructional Technology and Material Development" course is a course that provides an important contribution to this field. In each section of teachers in educational technology are taught according to their field. Also, until the beginning of this course which takes place in 3. class, the teacher candidates takes many courses (formations, computer use, field courses, etc.). Therefore, they already have certain knowledge. With this course student teachers are properly trained on or about educational technology tools, power, technique, and as with all aspects of their field. Prospective teachers in educational technology training they received as a result developed this concept for the identification of perceptions in Turkey on teacher training in this area according to their role opinions will also help assess the training.

### 1.1. The Concept of Metaphor and Metaphors As a Data Collection Method

A qualitative research method of data collection techniques as metaphors, by setting out a number of variables used to test the accuracy of the theory is an important method (Jensen, 2006). Although frequently used in daily life, the metaphor is not only the language of perception, thought and acted in has a significant effect is expressed (Lakoff and Mark, 2005) Metaphor in this sense, a sense of the individual in the direction of the acquisition, likened the process of judicial interpretation of results are obtained. Especially in the field of social sciences in an objective manner that can't be collected directly from the metaphor can capture the data collected are used indirectly. These aspects of educational research in a variety of metaphors are often used. Education programs in developing education become operational in bringing the learning to support creative thinking skills in the development of different teaching and learning skills, acquiring and learning environment in the regulation of metaphor as information obtained is used (Fisher and Graddy, 1998; Gillis and Cherly, 2002; Vadeboncoeur and Torres, 2003; Çelikten, 2006; Jensen, 2006; Silman and Şimşek, 2006; Girmen, 2007; Saban, 2008).

Yıldırım ve Şimşek (2005), as the fundamental basis for the use of metaphors in collecting scientific data state human nature and the environment to understand the wants, meaningless seemingly objective reality certain comments via meaning landing, it allows "to know".

## 1.2. Use of Metaphor and the Structure of Metaphor

Likened to the metaphor of a meaningful and interpretable features and simulation has two components (Kovecses, 2002), these components "source area" and "target" is also called. For example, this study also "the role of educational technology use" concept targeting the participants that the source is the area of simulation. On the other hand, can compare how metaphors are meaningful is going on and for what purpose should also be put. (Oğuz, 2005). Hence the metaphor in the study of "why?" or "why" questions to ask the meaning of metaphor is important because of the installation. Reasons obtained from the analysis of the meaning of the metaphor are used to install. The main reason, of the names synonymous with distinctive names done through analysis of the reasons cited is the metaphor (Glucksberg and Keysar, 1993; Yıldırım ve Şimşek, 2005).

## 1.3. Factors Affecting as a metaphor for the Department of Education Vision

Hoyle and Wallace (2007) indicated that the formation of metaphors may be rooted in the past experiences, educational background: such attitudes may play a role in a number of factors are expressed. Greene (1994) asserted that metaphor of the major factors affect language and cognitive competencies, and that the qualifications of the individual images from around the brain, which is said to install the various meanings. Aubusson (2002) and McDermott (2003) support Greene's views by participating in all matters that affect an individual's thoughts of the brain (the behaviors, opinions, attitudes, beliefs and past experiences) have argued that metaphors play a role in shaping. Perception of the individual's educational experiences, attitudes, past experiences and belief that the most important factors affecting the exchange is concerned, the metaphor of the educational process of the past, the importance of education is emerging (Eripek, 1998). For example, an engineer, teacher or doctor's "computer" will install to the concept of metaphor to shape their education than is natural. Faculties of education are different in different parts of the information that prospective teachers "educational technology" in the use of a change in their role they are expected to reap.

## 1.4. Significance of The Study

This study is based on the assumption that the way how prospective teachers perceive themselves and for what they are educated can be determined by metaphors related to teachers' roles developed by them in terms of educational technology use. In this sense, education given to prospective teachers can be assessed with all of its aspects and organized as a result of whether teachers' roles differentiate between their departments or not.

## 1.5. Purpose of The Study

The main purpose of this study was to determine roles assigned by prospective teachers to themselves in terms of use of educational technology by means of metaphors as a result of their education. With this aim, questions below were addressed in this study:

1. Which metaphors do prospective teachers develop in order to describe their roles in terms of

use of educational technology?

2. Under which categories can those metaphors be developed by prospective teachers in order to describe their roles in terms of use of educational technology clustered?

3. What kind of distribution are metaphors developed by prospective teachers in order to describe their roles in terms of use of educational technology display according to their departments?

## 2. METHOD

This study is designed by the qualitative research method, and in this section participants, data collection tool and data analysis method are described.

### 2.1. Research Design

Since this study portrays a general picture, it is considered as a case study in which qualitative research methods are employed. A case study is a research method which explains a current phenomenon within its framework and in which boundaries between that phenomenon and content are not distinct (Yıldırım ve Şimşek, 2005). Data obtained from this study were analyzed by means of content analysis. In order to determine teachers' perceptions and views, metaphors, one of data collection techniques in qualitative research methods, were utilized.

### 2.2. Participants

This study which aims to determine prospective teachers' perceptions and views in terms of use of educational technology was conducted at Faculty of Education, Afyon Kocatepe University, Turkey with senior students in the spring term of academic year of 2008-2009. In this study, for the number of participants is too big, a sample was used. In order to make this study practical and faster, easily attainable sampling was employed as a sampling method mostly used in qualitative research (Yıldırım & Şimşek, 2005). The distribution of participants according to their departments and gender is displayed in Table 1.

Table 1. Demographical data of participants

		<i>f</i>	%
Gender	Male	52	39.7
	Female	79	60.3
	Total	131	100
Departments	Primary Education	30	22.9
	Pre-school Education	25	19.0
	Social Studies Education	22	16.8
	Turkish Teaching	19	14.5
	Primary School Mathematic Teaching	20	15.3
	Chemistry Teaching	15	11.5
	Total	131	100

### 2.3. Data Collection Method and Data Collection

In order to determine teachers' perceptions and views, metaphors, one of data collection techniques in qualitative research methods, were utilized. As one of data collection techniques of a qualitative research, metaphors are one of the most important methods utilized to examine correctness of theories based on so many variables (Jensen, 2006). Especially in social sciences, metaphors are utilized to obtain data indirectly that are not directly obtained in an objective way (Yıldırım & Şimşek, 2005). Meaningful and interpretable metaphors consist of two components: simulated and simulation (Kovecses, 2002). Kovecses (2002) also identified those components as "source domain" and "target domain". In addition, it is required to present how and why those metaphors are developed to make metaphors meaningful (Oğuz, 2005). Those meanings derived from metaphors are used while analyzing metaphors.

A form consisting of three parts, that is, instructions, personal information and a metaphor question, was developed by researchers to gather data. Data were collected by researchers and before data collection, students were informed about metaphors and it was especially paid attention not to canalize students. Participants were asked a question of "Which role would you prefer if you were asked to assign a role to yourself in terms of use of educational technology? Why?" and they were asked to write a metaphor related to educational technology.

### 2.4. Data Analysis

Data obtained from prospective teachers were employed to check of appropriateness for analysis before being analyzed. Due to not developing a metaphor, not displaying a precise metaphor directly and using more than one metaphor, forms that are not appropriate for analysis were not included in analysis procedure. Three experts of different fields were consulted in order to strengthen reliability of the data. In qualitative research methods, reliability of the data is formulized as follows:  $\text{Agreement} / (\text{Agreement} + \text{Disagreement}) * 100$  (Miles ve Huberman, 1994). Responses of field experts were compared according to that formula and the reliability coefficient of the study was found as .86.

## 3. FINDINGS AND DISCUSSION

For the sub-purposes of the study, the roles of teacher candidates and their departments according to the distribution of these roles is given below as the titles.

### 3.1. Metaphors Used by Prospective Teachers for Their Roles in Use of Educational Technology and Categories Derived From Those Metaphors

When metaphors obtained from this research generally considered, it was seen that 131 valid metaphors were totally used. The rate of use of the same metaphors except categories of user and

learner was low. Among those metaphors, mostly used metaphors were as follows: "teacher" (17 times), "user" (16 times), "designer" (11 times) and "computer" (9 times).

Metaphors were categorized according to why those metaphors were used. Metaphors developed in terms of roles of prospective teachers in use of educational technology were clustered under six different categories. Quantitative data related to those metaphors and six different categories are shown in Table 2.

Table 2. Categories of metaphors obtained from prospective teachers

Categories	f	%
Being important / useful	36	27.5
Assistant / guide	34	26.0
User	28	21.4
Producer / designer	16	12.2
Learner	10	7.6
Attitude	7	5.3
Total	131	100

When roles assigned by prospective teachers to themselves in terms of use of educational technology considered, it was seen that prospective teachers used metaphors such as being important / useful, assistant / guide, user, producer / designer, learner and attitude. The mostly used metaphor was being important / useful whereas the metaphor of attitude was used at least. Table 3 displays the distribution of metaphors that constitute categories.

Table 3. The distribution of metaphors that form categories

Being important / useful		Assistant / Guide		User		Producer / Designer		Learner		Attitude							
f	%	f	%	f	%	f	%	f	%	f	%						
Computer	7	19.4	Guide	7	20.7	User	12	42.9	Designer	8	50.0	Student	7	70	Guide	2	28.6
User	3	8.4	Teacher	4	11.8	Teacher	10	35.7	Producer	3	18.6	Educator	1	10	Designer	2	28.6
Engine driver	2	5.6	Executive	3	8.8	Student	2	7.1	Graphicner	1	6.3	Innovator	1	10	Teacher	1	14.3
Projector	2	5.6	Computer	2	5.9	Educator	2	7.1	Teacher	1	6.3	Unexp. driver	1	10	User	1	14.3
Bankkiler	1	2.7	Steering wheel	1	2.9	Implementer	1	3.6	Expert	1	6.3				Director	1	14.3
Scientist	1	2.7	Educator	1	2.9	Key	1	3.6	Programmer	1	6.3						
Other (*)	20	55.6	Other (*)	16	47.0				Researchner	1	6.3						
Overall Mean	36	27.5	Overall Mean	34	26.0	Overall Mean	28	21.4	Overall Mean	16	12.2	Overall Mean	10	7.6	Overall Mean	7	5.3

(\*) Some of the metaphors which have a frequency of 1 in each category were clustered under "Other" in order to attain a space.

Although some prospective teachers used the same metaphor as a role, differentiation of the reasons for metaphor use was significant. Use of different metaphors by prospective teachers was explained by Howard (1984) with humans' purposes and ways of use and by Cisek (1999) as different points of view. In addition, Erdoğan and Gök (2008) stated that technological access opportunities

have a significant effect on metaphors related to technology. Technological access opportunities may have an effect on describing different metaphors.

The metaphors mostly used in categories are supported with sample expressions below:

A sample expression related to metaphors in "Being important / useful" category is as follows:

"The role of a computer. A computer is a very useful tool for humans. Especially when education is the case, people can learn everything with a simple click. Furthermore, a computer has another importance in educational technology..."

Metaphors in "Assistant / Guide" category can be exemplified as below:

"I would be assigned as a guide. I would guide students in terms of use of technological tools and provide them to be in a good position in our society."

Metaphors used by 16 participants in "User" category can be exemplified as follows:

"I would be assigned as a user since we can be effective by using educational technology effectively."

Metaphor samples in "Producer / Designer" category are given below:

"I would be a designer of Technologies since use of something which is designed by yourself is more effective."

Metaphor samples in "Learner" category are as follows:

"I would be assigned as a student since I do not have enough information about use of educational technology."

Sample metaphor expressions of "Attitude" category are given below:

"I would be a guide because I love teaching something to people and being a guide about something."

### 3.2. Distribution of Metaphors Used by Prospective Teachers According to Their Departments at which They Are Being Taught

The distribution of metaphor categories used by prospective teachers for the concept of educational technology according to departments at which they are being taught was examined. Results based on that scope are given in Table 4.

Table 4. The distribution of metaphor categories according to departments

	Being important , useful		Assistant / Guide		User		Producer / Designer		Learner		Attitude		TOTAL	
	f	%	f	%	f	%	f	%	f	%	f	%	f	%
Primary Education	13	43.3	7	23.3	7	23.3	3	10.0	0	0	0	0	30	22.9
Pre-school Educ.	9	36.0	4	16.0	5	20.0	3	12.0	4	16.0	0	0	25	19.0
Soc. Stud. Educ.	4	18.2	6	27.3	3	13.6	3	13.6	1	4.5	5	22.3	22	16.8
Turkish Teachin.	3	15.8	4	21.0	5	26.3	1	5.3	5	26.3	1	5.3	19	14.5
Primary S. Math.	1	5.0	6	30.0	6	30.0	6	30.0	0	0	1	5.0	20	15.3
Chemistry Teachin.	6	40.0	7	46.7	2	13.3	0	0	0	0	0	0	15	11.5
TOTAL	36	27.5	34	26.0	28	21.4	16	12.2	10	7.6	7	5.3	131	100

When Table 4 considered, it is seen that departments of prospective teachers at which they are being taught differed on their metaphors used for educational technology. For instance, senior students of Department of Primary Education used metaphors in "Being important / useful" category (43.3%) but did not use any metaphors in "Learner" and "Attitude" category. Senior students of Department of Social Studies Education (27.3%) and Chemistry Teaching (46.7%) used mostly metaphors in "Assistant / Guide" category. Furthermore, metaphors in "Attitude" category were mostly used by senior students of Department of Social Studies Education. Departments of Primary School Mathematic Teaching and Turkish Teaching had a balanced distribution whereas senior students of Department of Turkish Teaching felt insufficient in "Learner" category. Department of Chemistry Teaching was extensive in "Assistant / Guide" (46.7%) and "Being important / useful" (40%) categories.

It can be said that departments at which students are being taught may have effect on the roles assigned for the use of educational technology. Differences according to departments arising from different segments of the technology may have. A tape, an educational video technology can be useful technologies for an English teacher, while a puppet can be useful technology for pre-school teachers as a educational technology. Differentiating of metaphors developed by prospective teachers for roles can be explained by Mcdermot (2003) with a significant effect of jobs on metaphors and by Eripek (1998) with an importance of educational practices and past experiences in formation of metaphors. Kabakçı and Tanyeri (2006) also stated that departments of prospective teachers have an effect on their perceptions of educational technology.

#### 4. CONCLUSION AND RECOMMENDATION

Totally, 131 metaphors of prospective teachers from six different departments were clustered under six categories in this study. Those categories were entitled as follows: Being important / useful (36 metaphors), assistant / guide (34 metaphors), user (28 metaphors), producer / designer (16



metaphors), learner (10 metaphors) and attitude (7 metaphors). It was seen that prospective teachers mostly described their roles as being important / useful, being an assistant and user, roles of designer and learner were fewer and they also focused merely on the role of attitude (loving role). When departments considered, a different distribution related roles in categories was obtained. In other words, distribution of roles assigned in use of educational technology differed according to departments at which students are being taught. This result might be explained by the effects of one's ideas (perceptions, attitudes, beliefs, and past experiences) on the metaphors (Aubusson, 2002; Mcdermott, 2003). It can be said that different practices of field knowledge may cause differences in terms of roles.

The following can be recommended according to the results of this study; Prospective teachers assigned different roles to themselves. Differences on roles also reveal psychological aspect of educational technologies. The use of educational technologies should also be psychologically with the examples considered besides its technical aspects. In addition, it is significant to demonstrate how different technologies can be put into practice in terms of departments. On the other hand, Viswanathan and Blom (2010) stated that the school visits are important for the metaphors. Maybe, the school visits can be made to see what they can do and what their roles are within the scope of "Instructional Technology and Material Development" course. Thus, prospective teachers, having different viewpoints, can utilize different technologies in their departments. For the future researches, to investigate of situation in the different universities, and to implement and analyze of drama activities with different roles in the "Instructional Technology and Material Development" course can be recommended.

## REFERENCES

- AECT. (2004). *The Meanings of Educational Technology*. Retrieved December 12, 2007, from [www.indiana.edu/~molpage/Meanings%20of%20ET\\_4.0.pdf](http://www.indiana.edu/~molpage/Meanings%20of%20ET_4.0.pdf)
- Aubusson, P. (2002). Using Metaphor to Make Sense and Build Theory In Qualitative Analysis. *The Qualitative Report*, 7(4), pp: 1-14.
- Çelikten, M. (2006). Kültür ve Öğretmen Metaforları, *Erciyes Üniversitesi Sosyal Bilimler Enstitüsü Dergisi*. 21, pp:269-283.
- Cisek, P. (1999). Beyond the Computer Metaphor: Behaviour As Interaction. *Journal of Consciousness Studies*, 6(11), pp:25-42.
- Erdoğan, T. & Gök B. (2008). Sınıf Öğretmeni Adaylarının Teknoloji Kavramına İlişkin Algılarının Metafor Çözümlemesi Yoluyla İncelenmesi. *8<sup>th</sup> International Educational Technology Conference*, Eskişehir, pp:1071-1077.
- Ergin, A.(2003). *Öğretim Teknolojisi ve İletişim*. Öğretim Teknolojileri ve Materyal Geliştirme. Editör: F. Odabaşı, Eskişehir: Anadolu Üniversitesi Yayınları.
- Eripek, S. (1998). Öğrenci Davranışlarını Değiştirme. *Eğitim Bilimlerinde Yenilikler*. (Editör: Ayhan Hakan). Eskişehir: Anadolu Üniversitesi Yayınları.
- Fisher, D. & Graddy, N. (1998). Teachers' Images of Their Schools and Perception of Their Work Environments, *School Effectiveness and School Improvement*. 9(3), pp:334-348.

- Gillis, C.& Cherly L.J. (2002). Metaphor as Renewal: Re-Imaging Our Professional Selves, *English Journal*. July, pp:37-43.
- Glucksberg, S. & Keysar, B. (1993) . *How Metaphors Work. Metaphor and Thought*. New York: Cambridge University Pres.
- Greene, M. (1994). Epistemology and educational research: The influence of recent approaches to knowledge. *Review of Research in Education*, 20, pp:423-464.
- Howard, P. (1984). Computer Metaphors: Approaches to Computer Literacy for Educators. *Weaver of Information and Perspectives on Technological Literacy*, 1(2), pp:10-11.
- Hoyle, E.&Wallace M. (2007). Beyond Metaphors of Management: The Case for Metaphoric Re-Description in Education. *British Journal of Educational Studies*, 55(4), pp:426-442.
- Jensen, F.N. (2006). Metaphors as a Bridge to Understanding Educational and Social Contexts. *International Journal of Qualitative Methods*, 5(1), pp:1-17.
- Kabakçı, I. & T. Tanyeri. Öğretmen Adaylarının Öğretim Teknolojileri ve Materyal Geliştirme Dersi Kapmasında Öğretim Araçlarına İlişkin Görüşlerinin Karşılaştırılması, 6<sup>th</sup> *International Educational Technology Conference*. Doğu Akdeniz Üniversitesi, KKTC, 2006.
- Kovecses, Z. (2002). *Metaphor: A Practical Introduction*, Oxford University Pres, New York.
- Lakoff, G.&Mark J. (2005). *Metaforlar: Hayat, Anlam ve Dil*.(Çev. Gökhan Yavuz Demir),İstanbul: Paradigma Yayınevi.
- Mcdermott, P.K. (2003). *Zen and The Art Systems of Analysis: Meditations on Computer System Development*. (2. basım). Lincoln: Writers Club Press.
- Miles, M. B.& Huberman, A. M. (1994). *Qualitative Data Analysis*(2. baskı). Thousand Oaks, CA: SAGE.
- Oğuz, A. (2005). Öğretmen Eğitim Programlarında Metafor Kullanma, *XIV.Ulusal Eğitim Bilimleri Kongresi*, Denizli: Pamukkale Üniversitesi Eğitim Fakültesi.
- Saban, A. (2008). ilköğretim I. Kademe Öğretmen ve Öğrencilerinin Bilgi Kavramına İlişkin Sahip Oldukları Zihinsel İmgeler, *İlköğretim Online*. 7(2), pp:421-455.
- Silman, F.&Şimşek, H. (2006). Türkiye ve Amerika Birleşik Devletleri Okulları ve Merkezi Eğitim Kurumlarına Mecazlar Yoluyla Bir Bakış, *Eğitim Araştırmaları Dergisi*. 23, pp:177-187.
- Vadecoeur, J.A. & Torres M.N. (2003). Constructing and Reconstructing Teaching Roles : A Focus On Generative Metaphors and Dichotomies, *Discourse: Studies in the Cultural Politics of Education*, 24(1), pp.88-97.
- Viswanathan, D. & Blom, J. (2010). New Metaphors from Old Practices—Mobile Learning to Revitalize Education in Developing Regions of the World. *IEEE Transactions on Learning Technologies*, 3(1), pp. 18-23.
- Yıldırım, A. & Şimşek, H. (2005). *Sosyal Bilimlerde Nitel Araştırma Yöntemleri* (5. baskı), Ankara: Seçkin Yayıncılık.