

Definition of a Learning Object from Perspectives of In-Service Teachers (Case of Duzce Province)

Hizmet-içi Öğretmenlerin Bakış Açısından Bir Öğrenme Nesnesinin Tanımı (Düzce İli Örneği)

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Abstract: Learning objects, as a relatively new technological concept, have drawn much attention from educators because these dijital resources are easily accessible, relatively easy to use due to their limited size and focus, interactive, and adaptable to many different educational contexts. Despite the fact that learning objects have the great potential to improve teaching and learning experiences by providing teachers reusable learning materials and reducing costs, the lack of a “working and clear” definition of these materials has restricted their effective and efficient use. This study aimed to explore elementary school teacher perceptions of their use of learning objects from a qualitative research paradigm in order to reveal the extent to which teachers understand concept of learning object and its instruction approach. The method of the study was based on descriptive phenomenology. Data were collected using multiple methods, including the semi-structured interview, field observation reports, and photos from nine in-service elementary school teachers from different departments in Duzce, Turkey. Methods of data analysis were based on Giorgi’s method of descriptive phenomenology including four stages of content analysis: data coding, developing themes, organizing code and themes, describing findings. Overall findings of the study indicate that teachers use learning objects in their lesson activities without explicit recognition; however they generally fail to understand the exact meaning of a learning object approach and its applications in the classroom. Participants understood different properties of learning objects. Almost all participants perceive objectivity as the most important characteristic of the learning object. In addition, a majority of the teachers recognized the value of a learning object’s reusability. In-service teachers’ vague perceptions of the definition and usage of learning objects indicated that they used these materials without clear directions and explanations on what a learning object is, and how these materials can be used in an efficient way. Implications for teacher education and development of curriculum materials related to reusable learning objects were discussed.

Keywords: Learning objects, teacher education, elementary school teachers

Öz: Bu çalışma, nitel araştırma yöntemleri ışığında ilköğretim öğretmenlerinin öğrenme nesnelere bakış açılarını, öğrenme nesnesi kavramını ne ölçüde anladıklarını ve uygulama yaklaşımlarını ne kadar benimsediklerini incelemeyi amaçlamıştır. Çalışmanın metodu, tanımlayıcı olgu bilimine dayanmaktadır. Veriler, yarı yapılandırılmış görüşmeler, alan gözlem formları ve resimler olmak üzere farklı veri toplama araçları kullanılarak Düzce ilinde görev yapan dokuz ilköğretim öğretmenin katılımı ile toplanmıştır. Verilerin analiz yönteminde Giorgi’nin tanımlayıcı olgu metodu kullanılmış ve dört aşamadan oluşan tümevarımcı içerik analizi yapılmıştır. Bu aşamalar; verilerin kodlanması, temaların geliştirilmesi, kodların ve temaların organizasyonu ve son olarak bulguların tanımlanması gibi ana başlıklar altında toplanabilir. Çalışmanın genel bulguları göstermiştir ki; öğretmenler açık bir tanım olmaksızın kendi ders faaliyetlerinde öğrenme nesnelere kullanmaktadırlar. Ancak öğretmenlerin öğrenme nesnesi yaklaşımını tam anlamıyla kavramada ve ders içi uygulamalarda kullanma konusunda başarısız oldukları söylenebilir. Diğer yandan katılımcılar, öğrenme nesnelere için farklı özellikler belirtmişlerdir. Nesnelleştirme, hemen hemen bütün katılımcılar için öğrenme nesnelere en önemli özelliği olarak vurgulanmıştır. Bunun yanında öğretmenlerin birçoğu öğrenme nesnesinin tekrar kullanılabilmesinin değerini ve önemini

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vurgulamışlardır. Sonuç olarak yapılan bu araştırma hizmet içi öğretmenlerin; öğrenme nesnelерini tanıma ve kullanma konusunda belirsiz algılara sahip olduklarını, bu materyallerin ne olduğu ya da sınıf ortamlarında nasıl kullanıldığı konusunda açık, anlaşılır yönlendirmeler ve açıklamalar olmaksızın materyalleri ders faaliyetlerinde kullandıklarını ortaya koymaktadır.

Anahtar Kelimeler: Öğrenme nesnesi; öğretmen eğitimi; ilköğretim öğretmenleri.

Introduction

Technology has the potential today to change teaching and learning experiences by enabling teachers to create and use different strategies and activities that are more student-centered, active or interactive, and include relevant learning materials. As a small part of the technology-supported learning environment, the term learning object (LO) emerged from computer science and web technology and it was first used and popularized by Wayne Hodgins in 1993 in education. The learning objects are generally defined as digital resources to enhance teaching and learning (McGreal, 2004). As a new technological concept, these materials may cause some confusion for researchers in the literature (Dahlin, 2007; van Bommel 2012). For example, Polsani (2006) pointed out that because the learning object concept is relatively new, organizations and research groups define learning object differently depending upon their point of view. Furthermore, according to Wilhelm and Wilde (2005), many different terms are used by educators and trainers to refer to, and to define, a learning object, such as, instructional object, educational object, knowledge object, intelligent object or data object. Even today, there are multiple terms, definitions, and uses of learning objects, which can be seen an evidence of serious lack of information about the concept of learning object (Sinclair et al, 2013).

The Institute of Electrical and Electronics Engineers (IEEE), the first institution to attempt to describe these learning materials, defines a learning object as “any entity, digital or non-digital, which can be used, re-used or referenced during technology supported learning”. Wiley (2002b, p.6) considers this definition too broad to be meaningful, and instead defines learning object as “any digital resource that can be reused to support learning”. This definition is used in the scope of this study to describe a learning object. The most significant characteristics of a learning object, according to Wiley (2001, p.3), are being digital and reusable in multiple contexts. “The fundamental idea behind learning objects: instructional designers can build small (relative to the size of an entire course) instructional components that can be reused a number of times in different learning contexts” (Wiley 2001, p.3).

Downes (2007) views learning object similar to the IEEE. Like tissue paper that can be used for many different purposes and tasks, the learning object is, as it most fundamental level, a resource to support learning in many different ways. Downes (2007) also believes that learning object may be defined according to the needs in education. Moreover he pointed out that, to reduce costs and to save time, the concept of learning objects should be clearly labeled with the appropriate term and defined to prevent overlapping and confusing conceptual problems.

Cisco Systems is one of the important leaders in the field of network technology area. It is interesting that Cisco is also concerned with insuring a clear understanding of the learning object concept. Cisco believes that the definition of learning object should be chosen based on certain criteria that include needs, hierarchy, instructional approach, audience, and delivery media (Cisco, 2003). Its definition is that a learning object is a small, self-contained, and reusable entity that can be used independently or collectively into a larger content (Millar, 2003).

A need for a “working definition” of a learning object is emphasized by Weller et al. (2005) because all existing learning objects can be used, located, and utilized in the same way. He suggested defining a learning object as “a digital piece of learning material that addresses a clearly identifiable topic or learning outcome and has the potential to be reused in different contexts” (Weller et al., 2005, 3). Some properties of LOs, emphasized differently in different definitions, include the following in a single definition: 1) digital in form; 2) associated with a learning objective; and 3) reusable.

A summary of learning object terms and their scope is given in Table 1 to better understand and define different aspects of this concept (McGreal, 2004).

Table 1. *Learning Object Terminology. This Table Is the Revised Version of McGreal (2004)*

Scope in the definition	Anything non-digital	Anything digital	Anything specific for a learning environment
Terms and Researcher	Component <i>Merril, 1983</i>	Information Object <i>Wiley, 1999</i>	Sharable Content Object (SCO)
	Asset <i>Wiley, 2000</i>	Content Object <i>Slosser, 2001</i>	<i>ADL, 2003</i>
	Learning Resources <i>Downes, 2003</i>	Educational Object <i>Friesen, 2001</i>	Reusable Learning Object (RLO)
		Learning Object <i>Jacobsen, 2001</i>	<i>Cisco System, 2001</i>
Example	Text books, tissue paper, maps, ...	text file, image, video, audio, animation, slide, worksheet, diagram, html file, ...	Course materials, and any digital resources with metadata tags

A lack of uniformity in the definition and understanding of learning object is apparent (Table 1), as different researchers, organizations, and institutions develop their own learning materials, such as lessons, modules, or lesson topics. McGreal (2004) indicated that due to the lack of a “working” definition, a large number of similar, yet distinct, learning materials are being used by teachers, students, or other potential users. According to Downes (2003), the educational world does not need thousands of similar learning materials. This study may help educators and developers by establishing greater uniformity of the learning object concept from the teacher’s point of view, thus promoting greater efficiency and effectiveness in education.

Furthermore, little research has been done, especially in Turkey, on in-service teachers’ personal understanding of learning object concept. The majority of the existing research studies are based on the different aspects of learning object:

- definitions and meanings of LO (Wiley, 2004; McGreal, 2004),
- perceptions of teachers towards learning object based instruction (Gurer, 2013),
- repositories (Lovin, & Branch, 2003; Najjar, Ternier, & Duval, 2004; Caris, 2004; Karaman, 2005),
- social- cultural attitudes towards collaboration and sharing of learning objects (Littlejohn, 2005),
- design and development of LOs (MacDonald et al., 2004),
- metadata standards (Downes, 2004), evaluation (Kay, & Knaack, 2007a),
- creation of LOs (Jessup Stephanie, 2007),
- effectiveness of LOs (Akpınar, & Simsek, 2007; Türel, 2008).

There are many studies conducted in Turkey to investigate some of the various effects of learning objects on learning, on students’ academic achievements, or on students’ attitudes (e.g., Akpınar & Simsek, 2007; Türel, 2008; Baki & Çakıroğlu, 2010). In these studies, a learning object is defined as a digital resource that can be used or reused to facilitate learning and teaching. This is a common definition generally used by researchers to indicate all digital materials named as learning object, reusable learning objects, educational objects, etc.

As a result, in this study, background of the problem is based on definition of learning objects and analyzing in-service teachers’ real experiences to understand how they define a learning object and how it differs from existing definitions and meanings of a learning object defined by designers, researchers, and organizations.

Methodology

The present research study focused mainly on the teachers' own perspectives of learning object and its integration into the Turkish elementary school classrooms, where teachers act as both subject matter expert and instructional designer.

A qualitative research paradigm was used to focus on these two roles, and how teachers experience and interact with the phenomenon being studied at a given point in time and in particular context (Croker, 2009). For this study, qualitative research methodology, specifically the phenomenological approach, was employed to (a) gain in-depth information with rich-and-thick descriptions of perceptions and lived experiences of elementary teachers, (b) avoid bias, presuppositions, and judgments, and (c) potentially add new codes, themes, and patterns revealed from interview, observation, and document data. Therefore, to provide a foundational basis for the future quantitative research studies, this study examined in details the skills, knowledge, and perceptions of a sample of teachers who use and implement learning object-based instruction. Results from this research may also be used to define a learning object for creating more effective and appropriate strategies that are built on these materials

A descriptive phenomenological method was used and two research questions were formulated for the study: (1) "How do teachers define a learning object?" and (2) "What are the characteristics of a learning object from teachers' point of view". A qualitative phenomenological research model with an open-ended, semi-structured interview was used to assess how elementary teachers define a learning object in their educational setting.

Participants

Because a sampling procedure in qualitative research is generally flexible – that is, there are no clear guidelines on selection criteria for sample (Morse, 1991), it may sometimes create some problems for the researcher. According to Kitson et al. (1994), interpretation of research findings and replication of the study in qualitative method depends on explaining or describing sample strategies in adequate detail. The researcher for this study used purposeful sampling as described by Patton (1990). The study consisted of nine in-service elementary school teachers from the field of classroom teacher and was conducted in Duzce, Turkey, a city in the western corner of the Turkey. Nickname was used for the participants to ethically protect and to mask the real names in data analysis and presenting findings. These nicknames were DZC1, DZC2, DZC3, DZC4, DZC5, DZC6, DZC7, DZC8, and DZC9. Additional demographic information regarding the 9 teachers is provided in Table 2.

Table 2. *Demographic Information of the Participants*

Demographics	Number of participants
GenderMale	3
Female	6
Teach another grade, school, subject	
Yes	7
No	2
Number of years of Teaching Experience	
0-2.5 years	2
3-6.5 years	3
7-10.5 years	2
11-15.5 years	1
16+ years	1

Data Collection

Data collection methods of phenomenological research include in-depth interviews (structured, semi-structured, and unstructured), observations, and documents (Creswell, 2007; Moustakes, 1994). Data were collected by researcher in three ways for this study; individual face-to-face interviews, field observation reports, and photographs. Each of the interviews is digitally recorded and transcribed verbatim (i.e., all information gained from the interview is recorded word by word, exactly as stated), and then saved into computer text files. The data files are then uploaded into ATLAS.ti, a software analysis program for qualitative data that generates themes, codes, and qualitative data statistics. As the second data collection tools, observation reports were used to collect data from the teachers about their classroom environment, such as teacher' behaviors and teacher-student and student-student interactions. And photographs were also used to collect qualitative data from the participants, which may have the potential of illustrating some aspect of using and implementing learning objects into educational settings.

Data Analysis

The data analysis of this study was based on Giorgi's (1997) method of descriptive phenomenology, as described by Langdrige (2007) because the goal is to fully understand and describe the perceptions and lived experiences of elementary education teachers using learning objects in their lesson activities. According to Giorgi (1997), phenomenological method "...should be descriptive because the phenomenological researcher wants to avoid any kind of premature analysis or explanatory constructs" to ensure trustworthiness of the study (p. 47). Data analysis included five essential processes: epoche, getting a sense of the whole, phenomenological reduction, imaginative variation, and synthesis of meaning (Giorgi, 1997; Moustakes, 1994).

The first step in data analysis is the epoche. This requires the researcher to set aside all his or her previously acquired knowledge, biases, presuppositions, and suppositions about the phenomenon (Giorgi, 1997; Moustakes, 1994). After epoche, the researcher reads descriptions of interviews. Entire transcription of each of the participants was read and reviewed multiple times in order to perceive the essence of the underlying meanings of the phenomenon. Phenomenological reduction was the third step of the analysis. This is the continuing process of epoche and includes description, horizontalization, and verification for "...continually returning to the essence of the experience in order to derive the inner structure or meaning in and out of itself" (Merriam et al., p. 94). The next step in data analysis is the imaginative variation (or imaginative free variation). It is "...the process of approaching the phenomenon being experienced from different perspectives by imaginatively varying features of the phenomenon" (Langdrige, 2007, p.19). The final step is the synthesis of meaning units. After identifying the essential meaning units, the researcher organizes them to describe the structure of the experience of elementary teachers. In the present study, content analysis of the Giorgi's (1997) method of descriptive phenomenology was conducted under the following stages, stated by Yildirim and Simsek (2011):

1. Data coding
2. Developing themes
3. Organizing codes and themes
4. Describing findings

Each step is followed for analyzing and identifying potential pattern and themes within the data from interviews, observation reports, and photographs. For this, the ATLAS.ti, qualitative data analysis software, was used to prepare the data for qualitative and quantitative analysis for all of the different types of data collection tools. Following figure shows the ATLAS.ti interface with a coded interview.

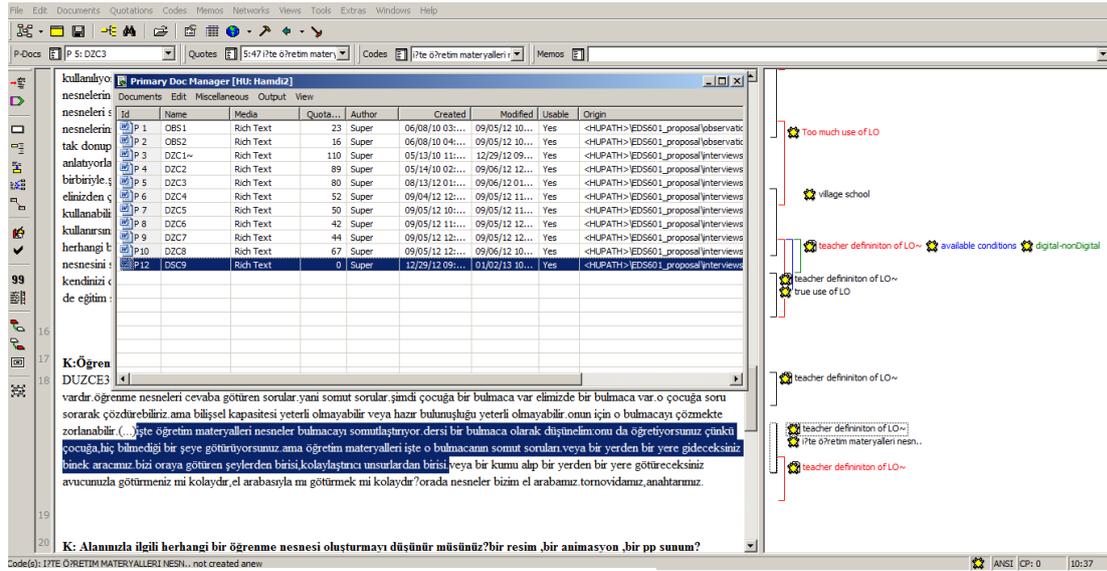


Figure 1. An example of a coded structure in ATLAS.ti

Researcher's Role

In qualitative research, the researcher act as a primary instrument of the research (Patton, 1999; Yıldırım and Simsek, 2008) and active participant in data collection and analysis (Cresweell, 1998). According to Creswell (1998), this participation may have an effect on the meaning and context of the phenomenon being studied. Therefore, the central focus in all phenomenological studies is on attempting to remove presumptions, knowledge, biases, and ideas about the phenomenon under study (Giorgi, 1997; Moustakes, 1994), known as reflectivity in qualitative studies.

In this study, the role of the researcher can be explained under two stages. One of them is Epoche. Patton (1990) indicates that “the first step in phenomenological analysis is that of Epoche”. Langdrige (2007) describes epoche as a process by which “we attempt to abstain from our presuppositions, those preconceived ideas we might have about things we are investigating” (p.17). To achieve epoche, researcher must put aside his perceptions, judgments, and knowledge throughout data collection and analysis (Patton, 1990; Moustakes, 1994; Giorgi, 1997). Second role of the researcher is to indicate or reveal any potential bias for the validity of the study if the phenomenon is somehow related to the researcher, which is also called “backyard research”. To minimize potential threats of backyard research, (a) data triangulation (Lincoln & Guba, 1985), (b) member checking (Lincoln and Guba, 1985), (c) peer debriefing (Lincoln & Guba, 1985; Creswell, 2007), (d) noting and reflecting possible biases (Creswell, 2007), (e) providing rich and thick description of research context (Lincoln & Guba, 1985), (f) ensuring that teachers understood that their participation to the research would not have any effect on their school conditions and professional life, were used.

Validity and Reliability

Reliability and validity define the value of the research, and generally focus on measurements and predictions of the study in quantitative research (Landridge, 2007; Moustakes, 1994). Morse at al. (2002) point out that this process determines the rigor of the study and recommends that reliability and validity analysis can be applied to all research methods. On the other hand, some researchers, such as Lincoln and Guba (1985), assert that these terms are not appropriate for qualitative research, so alternative terms have developed for reliability and validity, such as trustworthiness, rigorousness, or quality. For this study, trustworthiness substitutes for validity and reliability. Under the general banner of trustworthiness, credibility, transferability, dependability, and conformability were addressed to ensure trustworthiness of findings (Yıldırım & Simsek, 2008; Lincoln & Guba, 1985; Moustakes, 1994;). Polkinghorne (1989)

defines a list of five guidelines for the validity of the phenomenological research to be answered by researcher:

- Did the interviewer influence the contents of the subjects' descriptions in such a way that the descriptions do not truly reflect the subjects' actual experience?
- Is the transcription accurate and does it convey the meaning of the oral presentation in the interview?
- In the analysis of the transcriptions were there conclusions other than those offered by the researcher that could have been derived? Has the researcher identified these alternatives and demonstrated why they are less probable than the one decided on?
- Is it possible to go from the general Structural description to the transcriptions and to account for the specific contents and connections in the Original examples of the experience?
- Is the structural description situation-specific or does it hold in general for the experience in other situations? (p.208)

In order to address to the guidelines above, researcher used credibility, transferability, dependability, and conformability throughout the data collection and data analysis.

For internal validity, member checking was firstly used as an internal check of the research and it can be defined as a technique to establish to the validity of an account. All transcribed data were sent to the participants to check and revise the accuracy of the findings and interpretations. Triangulation, second technique to provide credibility in this study, refers to the combination of several data sources (Patton, 2002). In this study, the researcher used three types of data collection techniques to verify data -- semi-structured interview and field observation report and photos. In order to enhance external validity, the researcher provided rich and thick descriptions of research context and process to enable the readers to judge whether or not the findings of the study are transferable. Based on assumptions of reliability, an external auditor, as suggested by Lincoln and Guba (1985), is one of the strategies to ensure the dependability or consistency of the results of study.

Findings

A goal of this research study is to discover definition and characteristics of learning objects from teachers' lived experiences, including descriptions, perceptions, and feelings regarding the phenomenon being studied. Thematic analysis of the interview results revealed that most of the teachers did not have a clear understanding of the term "learning object". While some participants indicated that they had no literal information about learning object, and they are using it in their lesson activities without labelling it as such, most participants defined the learning object as "digital or non-digital material to facilitate learning by guiding, motivating, and leading students to accomplish desired learning objectives". Interview results are supported by analysis of observation reports and photographs that indicate teachers actively use different types of learning objects in their lectures. The presentation of findings is divided into two main sections: (1) definitions and (2) features of learning objects.

Definitions

Two teachers said although they have practical experiences on how to use learning objects in their lessons, they did not know anything theoretically about learning object and could not define what a learning object is. However, most of the participants defined a learning object as a digital or non-digital resource used to retain knowledge, to guide, motivate, and facilitate students. For example, one of the female participants stated this as follow:

Now we have something like this: for example, I do not have a large library in my house and also the library of the school is not enough for students. It is not always possible to find a book of any poet and show the students. Instead, I can show them the cover of all of the books from internet or presentations. they retain easily in this way, however sometimes to view the book itself, I mean to touch and analyze it, can be more useful for them than just seeing from the internet (DZC8 – 10:49).

For some, a learning object is facilitator tool. One male participant, for example, considered the impact on students of his feedback and encouragement by using these materials. And he observed and noted in many cases that lack of experience of using learning object can aggravate the learning situation for some students:

Teachers generally face time issue when conducting a lesson, especially student number in a classroom is much more than 20. I mean it is not always possible to deal with all of your students one by one so some of the students do not get all necessary information without an appropriate guidance. I think these small materials solve this issue by giving feed-back and encouragement according to students' responses (DZC3 – 34:21).

Another definition given by teachers was that learning object is a helper tool for them because of constraints on lesson preparation time and the ability to reuse it in different lessons or situations. According to some teachers (n=5), some learning objects include everything they need during the lesson activities, such as brief information, discussion forms, test, quizzes, questions, and other forms of assessment. One participant expressed a common view by explaining: “for me that is great to work with such kind of learning materials because I always have them and I can use same materials for each year in different classes without changing so much” (DZC3 – 1:21).

Some participants drew on the perceptions and attitudes of their students by noting the motivational aspect of learning object with such words as “motivate”, “drive”, “interesting”, “enjoyable”, and “very curiosity”. Teachers use learning object because they draw students' attention, and their students like to see them in lesson activities. One participant further indicated learning object as a useful guiding tool that helps students “follow the road”.

Participants also discussed their role as facilitator for students. They stated that such learning materials provide a new learning environment for the students to overcome some difficulties, and barriers that teachers encounter in more crowded classroom where they do not enough time to attend to all of the students' needs. One female participant, for example, aptly commented on this issue: “My biggest problem is crowded classroom. Sometimes I have classrooms where there are more than 30 students so under these conditions I am using some learning objects that facilitate students' understanding and creativity by providing guidance, necessary resources, and support during lesson activities” (DZC2 – 33:16)

Table 3 shows a brief summary of the definitions based on the number and reference of the participants and combination of the definitions stated by participants.

Table 3. *Teachers' Definitions of Learning Object.*

Definitions	Participants	Number of participants	Number of References
An object digital or non-digital	DZC1; DZC2; DZC3; DZC4; DZC6; DZC8; DZC9; DZC5	7	11
A guiding tool	DZC1;	1	2
A facilitator tool	DZC2; DZC3; DZC8	3	5
A motivational tool	DZC8; DZC9; DZC1	3	5
A helper for teachers	DZC7; DZC8; DZC2; DZC6; DZC5	5	6

Attributes

As for the properties of learning object from teachers' point of view, results indicate that all of the participants perceived objectivity as the most important characteristic of learning objects. They thought that learning objects help students understand more easily a concept that is

intangible and not easy to apply in a classroom environment. Participant 3, for example, said: “Presentations can help them [students] objectify intangible concepts” and “it objectifies and facilitates learning” (DZC3 – 8:11). One of the teachers also stated that all learning objects include a learning objective so students can gain expected skills and knowledge from the learning objects. He stated this by saying “some of students can learn easily if I use flash cards. I think students can recall all of the information by using simple flash cards that include an objective” (DZC7 – 6:18).

Other most-cited property of a learning object mentioned by multiple teachers (n=6) was reusability. According to teachers, a learning object should be able to provide a positive user experience. As one teacher, for example, stated, “Learning materials must be clear and easy to use because as you know we are very limited in terms of time so it would be very great if the learning objects we use in the lesson are well quality, professional, and ready to use.” (DZC6 – 110:21). Teachers in this study explained that one of the important aspects of the learning object is the ability to use a material in different instructional contexts and at different learning levels, as one illustrated: “you can use a learning object again and again that is really important. I have three classrooms in different grades so I can incorporate an object to different activities easily” (DZC2 – 2:6)

For some participants, a learning object is also interactive. They highlighted that for many students, immediate feedback may be very important, especially in a class of larger size. One of the teachers noted: “interactive learning objects provide an environment for my students where they can get some important skills by practicing their knowledge on a challenging situation. Actually, they like such kind of learning objects very much. To me, it is a very important experience for them to see and test the immediate result of their actions” (DZC9 – 41-33). The other one said, “students are doing on their own these games, some animations, and such kind of fun things like these, they are just at the center of the event therefore they are getting both to enjoy and to learn, so it is very difficult to forget it, and so such kinds of activities are very helpful” (DZC1 – 3:106).

Participants additionally described other properties of learning object as developable and enjoyable. Table 4 shows the references and number of participants and a distribution of properties of learning objects.

Table 4. *Attributes of Learning Object Discussed by Participants.*

Definitions	Participants	Number of participants	Number of References
Objectivity	DZC1; DZC2; DZC3; DZC4; DZC5; DZC6; DZC7; DZC8; DZC9	9	13
Interactivity	DZC1; DZC9; DZC7; DZC3	4	5
Developable	DZC2:DZC	2	13
Reusability	DZC2; DZC3; DZC6; DZC8; DZC1; DZC4	6	7
Enjoyable	DZC8; DZC1	2	5

Discussion and Implications

Overall, results of the study suggest both strengths and weaknesses in the uses of learning objects by teachers. Participants in this study generally failed to understand the literal concept of learning object. This can be evidence of a lack of effective and efficient use of learning object, as supported by the research literature (Parris, 2003). Because teachers participated in the study did not know well the methodology of learning object concept and technology supported learning, there may also be a lack of clear understanding of this term as well as a lack of effective incorporation of it into their educational system. This result is consistent with Koper (2004), who stated that for a successful implementation of learning object, teachers need

appropriate directions and explanations on what a learning object is and how these materials can be used in an efficient way. On the other hand, based on data from the observation, interviews and photographs, results showed that teachers easily integrated materials into their lessons, and guided and encouraged students on their use. These results are consistent with studies that relate teachers' attitudes to learning objects (Baki & Çakıroğlu, 2010; Türel & Gürol, 2011; Kay & Knaack, 2007b). According to Kay and Knaack (2007b), teachers react positively because they recognize that student learning and motivation is enhanced when learning objects are used in lesson planning and delivery.

Since one of the important goals of this study is to define a learning object according to perceptions of in-service teachers, we analyzed in detail teachers' responses based on their real experiences and how they were employed in the elementary class. The current study showed that *participants in this study perceived learning object as a referring tool that can be digital or non-digital to facilitate learning by guiding, motivating, and also helping students objectify intangible concepts*. This understanding of LO is partly supported by The IEEE Learning Technology Committee (2006), which defines learning object as "any entity, digital or non-digital, that may be used for learning, education or training". On the other hand, as stated earlier, some of researchers, such as Wiley (2001), indicated that a definition including non-digital material makes the concept broader, while the Learning Technology Standards Committee (LTSC) is trying to make the scope of the definition more narrow and specific to the instructional designer and teachers (IEEE LTSC, 2006).

Results showed that teachers perceived learning object more broadly than digital material and/or technology supported learning elements that enhance learning, but learning object approach is based upon digital perspectives and that a definition must include the two critical characteristics: "reusable" and "digital". According to Rennie and Robin (2004), learning object is a form of computer based instruction connected with the Object-Oriented paradigm in computer programming. The basic principle here is the creation of components (called as objects) that can be used or moved in different contexts. In an analogous way, Wiley (2002b, 2001) indicates that instructional designers or teachers can create small instructional components that may be reused again and again in different learning tasks. On the other hand, teachers believed that *anything or everything can be a learning object if it was used to facilitate learning and teaching*.

The fact that perceptions and knowledge of participants in the sample seem to be rather unclear about learning objects has important implications. In-service teachers have vague perceptions of learning object and its use in education which is mainly grounded on incomplete information and extensive generalizations. This shows that classroom teachers have used these resources without clear directions and explanations for more effective and efficient use or integration (Koper, 2003). To at least partially remedy this situation, as a first step, the Turkish teacher educational system may need to develop some special programs or certificates for preparing teachers in the concept, creation, and deployment of learning object. Teachers should be knowledgeable about digital learning materials, and they should be given highly practical information on how to use learning object effectively and efficiently. Implementation of these strategies has begun with a new project sponsored by the Turkish Ministry of National Education titled the 'Movement to Increase Opportunities and Technology (f@tih)', a goal of which is to create comprehensive online resources with tablet PCs and interactive smart boards to integrate technology into Turkey's education system.

There is also a high degree of uncertainty about characteristics of learning objects for experienced teachers. Almost all participants perceived objectivity as the most important characteristic of the learning object. They thought that learning objects help students more easily understand a concept that is intangible and not easy to apply in a classroom environment. Another property of learning objects according to the majority of the teachers was reusability. They thought that one of the attractive features of a learning object is the ability to reuse it in different lessons or in different groups of students. Reusability is the core idea of the learning object approach and it refers to a process of using a digital material in multiple contexts

(McGreal & Roberts, 2003; Parrish, 2004; Boyle, 2008). Some researchers prefer to use the term “reusable learning object” instead of “learning object”. According to Parrish (2004), if a learning object is reusable, that material used in one course or in one place can be used in different courses or in different places. This does not preclude updating or modifying existing materials. However, teachers defined reusability as being able to use material in different years for different students, not in different contexts.

As a result, the study revealed that teachers try to use learning objects in almost all of their lesson activities without formal recognition of this concept. However they generally fail to understand the exact meaning of learning object approach and its useful applications in an environment designed to support students with different types of learning objects.

Teachers play a very important role in the system of education. Many researchers indicated that classroom teachers, as the last authority in this system, have decided which resources and strategies will be used. Teachers’ perceptions and expectations about how students learn indicate the importance of the availability and use of relevant tools such as learning object. The potential for success of in-service teacher education is enhanced by the incorporation of digital learning objects for teachers and students. Based on the findings derived from this study, Turkish pre-service teachers need a new and appropriate instructional program for introducing them to learning object technology and its effective and efficient use in their future learning environments. This qualitative study may provide important information that begins to address the current status of teachers’ understanding (and lack thereof) about learning object.

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Uzun Öz

Giriş

Öğrenme nesnesi, öğrenme sürecini destekleyen ve farklı içeriklerde tekrar tekrar kullanılabilen dijital bilgi kaynaklarının tümü olarak tanımlanabilir. Polsani'ye (2006) göre öğrenme nesnelere, göreceli olarak yeni bir kavram olduğundan farklı organizasyonlar ve araştırma grupları, bu

nesneleri kendi bakış açıları ve ihtiyaçları doğrultusunda tanımlamaktadırlar. Buna ek olarak, Wilhelm ve Wilde (2005), öğrenme nesnesini tanımlamak ya da referans etmek amacıyla öğretmen, öğretici ve eğitimciler tarafından farklı terimler kullanıldığını ortaya koymuştur. Bunlar birkaçı; eğitimsel nesne, bilgi nesnesi, öğretimsel nesne, akıllı nesne ya da veri nesnesi şeklinde sıralanabilir. Bu tanım ve terim çeşitliği ile birlikte çok sayıda benzer öğrenme nesnesi, farklı gruplar tarafından çeşitli standartlarda belirlenen tanımlara göre oluşturulmaktadır. Downes (2003) ise eğitim dünyasının birbirinin aynı yüz binlerce öğrenme materyaline ihtiyacı yoktur, dolayısıyla bu çalışma eğitimciler ve geliştiricilere (eğitim materyali tasarımcılarına), çalışan öğretmenlerin bakış açısından öğrenme nesnesinin ne olup ne olmadığı konusunda fikir verebilir. Bu sayede öğrenme nesnesinin tanımında var olan eksikliklerin ortadan kalkması, daha etkili çalışılabilecek bir tanım ve ortak bir standart belirlenmesinde ilk adım olabilir. Bu çalışmanın amacı, hem alan uzmanı hem de öğretim tasarımcıları olarak görev yapan öğretmenlerin, ilköğretim sınıflarında öğrenme nesnelere dayalı bir eğitim modelini nasıl uyguladıkları ve bu yaklaşımın bir ögesi olan öğrenme nesnelerini nasıl tanımladıkları hakkında onların gerçek deneyimlerini belirlemektir.

Yöntem

Araştırmanın yöntemi nitel araştırma metodlarından biri olan tanımlayıcı olgu bilimi (Descriptive Phenomenology) metoduna dayanır. Bu çalışma için iki araştırma sorusu formüle edilmiştir; (1) “Öğretmenler bir öğrenme nesnesini nasıl tanımlıyorlar?”, (2) “Öğretmenlerin gözünden öğrenme nesnesinin özellikleri nelerdir?” Öğretmenlerin kendi eğitim-öğretim ortamlarında bir öğrenme nesnesini nasıl tanımladıklarını ortaya çıkarmak için açık uçlu-yarı yapılandırılmış görüşme formları kullanılmıştır. Çalışmanın verileri üç farklı kaynaktan toplanmıştır. Bunlar; (1) bireysel ve yüzyüze yarı yapılandırılmış görüşmeler, (2) alan gözlem formları ve (3) fotoğraflardır. Veri kaynaklarının tümü nitel veri analiz programı olan ATLAS.ti de analiz edilmiştir. Analiz yöntemi olarak Giorgi (1997) tarafından geliştirilen ve dört aşamadan oluşan tanımlayıcı olgu bilimi içerik analizi yöntemi kullanılmıştır. Bu aşamalar sırasıyla, verilerin kodlanması, temaların geliştirilmesi, tema ve kodların organize edilmesi ve sonuçların oluşturulmasıdır.

Bulgular

Görüşme formlarının analizi sonucunda, öğretmenlerin birçoğunun, alinyazında ifade edildiği şekilde öğrenme nesnesi tanımı ve terimi konusunda açık bir anlayışa sahip olmadıkları belirlenmiştir. Katılımcıların ikisi, öğrenme nesnesi hakkında teorik olarak neredeyse hiç bir bilgiye sahip olmadıklarını belirtip bunun yanında ders aktivitelerinde bu nesnelere isimlendirmeksizin kullandıkları ifade etmişlerdir. Öğretmenlere göre öğrenme nesnesi, “hedeflenen öğrenme çıktılarını başarmak için öğrencileri motive eden ve yönlendiren böylece eğitimi kolaylaştıran dijital ya da dijital olmayan materyallerin tümüdür”. Öğretmenlerin gözünden öğrenme nesnelere en önemli özelliği ise nesnellik olarak açıklanmıştır. Buna göre, öğrenme nesnelere, soyut ya da sınıf ortamında uygulanması zor olan içeriklerin çok daha kolay anlaşılmasında ve açıklanmasında öğrencilere yardımcı olmaktadır. Ayrıca, öğretmenler tarafından en çok referans gösterilen bir diğer özellik ise tekrar kullanılabilirliktir. Öğretmenler bu özelliği, materyalin farklı dönemlerde ve farklı gruplarda yeniden kullanılabilirliği olarak açıklamışlardır.

Tartışma ve sonuç

Genel olarak bu çalışmada yer alan katılımcılar, tam anlamıyla öğrenme nesnesi kavramını anlamada başarısız olmuşlardır. Bu durum alinyazında da desteklendiği gibi (Parris, 2004; Looser, 2007) öğrenme nesnelere etkili ve verimli kullanımındaki eksikliklere bir delil olabilir. Çalışmaya katılan öğretmenlerden elde edilen verilere dayanarak, öğretmenler, öğrenme nesnesi konsepti ve teknolojiye dayalı eğitim modeli konusunda yeterli bilgi sahibi olmadıklarından dolayı, bu yeni yaklaşımın açık bir şekilde anlaşılması ve var olan eğitim sistemine etkili bir şekilde entegre edilmesi konusunda ciddi eksiklikler yaşayabilirler. Koper

(2003) tarafından da belirtildiği gibi sınıf öğretmenleri bu nesnelere, açık ve anlaşılır tanımlar ve yönlendirmeler olmaksızın kullanmaktadırlar. Diğer taraftan, öğretmenlerin öğrenme nesnelere ilişkin tanımları IEEE (2006) tarafından yapılan tanıma oldukça benzemektedir. Ancak, daha öncede belirtildiği gibi bu tanım birçok araştırmacı tarafından eleştirilmiş ve anlamlı ve açıklayıcı bir tanım olmaktan uzak olduğu çeşitli yayınlarda vurgulanmıştır. Öğrenme nesnelere bugünün teknolojisine göre daha özgün ve daha dar bir tanıma ihtiyaç duyduğu belirtilmiştir. Bu çalışma ile bu ihtiyacın giderilebileceği düşünülmüş ancak ortaya çıkan sonuçlar göstermiştir ki öğretmenler bu yeni teknoloji ve bunun uygulama alanları konusunda yeterince bilgiye sahip değillerdir. Diğer taraftan çalışmadan çıkan sonuçlara dayanarak, Türkiye’de okul öncesi öğretmenlerinin, bu teknolojinin ne olduğu ve nasıl etkili ve verimli kullanılabileceği gibi bazı temel becerilerin dâhil edildiği güncel bir eğitim programına ihtiyaç duydukları söylenebilir. Bu nitel çalışma, bu yeni teknoloji hakkında öğretmenlerin var olan bilgisini ve bu nesnelere öğretmenler tarafından nasıl yorumladığını gösteren önemli bir ilk adım olabilir.