

# Distance Education and Training Approaches

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**Abstract-** Distance education is the most effective educational concept for today's educational world that has similar characteristics to traditional education systems. In fact, Distance education can be defined as all the processes after the walls in a traditional school have been removed from the center. It is platform where student-teacher and student interaction are realized in different time zones in different time periods. In this study, a literature review on the importance of a teaching strategy, teaching model and individual differences was made for distance education platforms. As a result, it has been concluded that the presentation model is important for gaining basic knowledge skills, but it is important to pay attention to individual differences as well as to reconstruct the information of individual differences.

**Keywords-** Constructivism, Presentation, Individual Differences, Distance Education

## 1. Introduction

Expository instructional approach refers to the transmission of information from expert to novice (Ormrod 2005; cited by: Sigler and Saam 2007). Merrill (2003) defines it as "a subset of instructional situations in which the instructor is not only providing information but also following the instructional activities of the student and providing guidance and feedback when necessary" (s.1160). In expository instructional approach, the instructor is the source and owner of information (Martin 2003: 207; cited by: Sigler and Saam 2007). Instructors using expository methods dominate the presentation of lessons and use strategies that include lectures, demonstrations, and videos (de Jong, van Jooligen, Swaak, Veermans, Limbach, King, and Gureghian 1998; cited by: Sigler and Saam 2007). The benefits of using this approach are listed below:

- It provides maximum control over the learning environment.
- It provides control over the content and sequence of information presented to students.
- It can be equally effective with large and small sized classes.

- It provides a large amount of information in a short period of time and provides students with equal access to these information.

For this reason, we often encounter with this method in distance education. Özkul and Aydın (2016) have defined distance learning as a learning process in which learners and learning resources are in different location in terms of time and / or space, and interactions with learners and with learning resources are performed based on remote communication systems, They suggest to focus on choosing learning strategies and tools based on types of learning outputs and contents; providing open and distance learning services which is learner centered not the subject matter or management process; using technologies to stimulate cognitive processes or applications to facilitate learning (2016). Based on the theory of independent study, a kind of distance learning theory, Moore classifies distance learning programs into two groups as autonomous (learner-centered) and non-autonomous (teacher-centered). Expository instructional approach is mostly preferred in establishing teacher-centered distance learning environment.

Today, online learning environments have emerged with the developing technologies. Khan (1998) defines online learning as a distribution model that allows for synchronically and non-synchronically use of resources in

distance education (Durdu and Durdu, 2016). Clark (2002) mentions directly from software (WebCT), rather than theoretical description, when talking about the online learning environment. They reason of pointing directly to this software is that the efforts to be realized in the electronic environment will ultimately result in the emergence of automation tools related to the management of teaching and learning processes (Govindasamy 2002: 288; Aktaran: Durdu ve Durdu 2016). Nowadays, this software are widely called Learning Management System. Ozan (2008) lists open source learning management systems, more than fifty, including Moodle, ATutor, Dokeos, Bodington etc. (Durdu and Durdu, 2016).

Lecture, discussion and question and answer are most used teaching techniques in expository instructional approach. In the theory of effective communication, which is also a theory of distance learning, Holmberg (1985) states that these techniques have an influence on the effectiveness of instruction and the sense of belonging (Ozkul and Aydin, 2016). It may be possible to use both lecture, virtual classes, videos and PowerPoint presentations in a distance learning program. A disadvantage of this method is that the learner is presented with too much information and the learner may get lost in the content. For this reason, the following points should be taken in the account when preparing distance teaching materials:

- Learning objectives must be clearly stated.
- Unnecessary information presented in the educational content can be excluded.
- The main points needed to be given in the text can be presented in highlighted or underlined with examples.
- Titles should be structured so as to facilitate learning.
- Conceptual maps can be used to help learners for a meaningful learning.
- Question-and-answer techniques can be used to provide active participation of learners in virtual classes.
- While teaching with video, interactive video tools can be used to provide active participation of learners. Adding questions and clickable areas on videos, and guiding the learners based on their video selection can motivate the learners in the course.

Taking notes by the learners is an important point in understanding the knowledge and storing it into long-term memories in expository instructional approach. For this purpose, it may be useful to use various virtual notebook applications and sections in the LMS system where the learner can take note of the content. The rules in The Distance Education Theory developed by Hilary Perraton (2005) include the following rules; "Group discussion is an effective method for open and distance learning" and "Feedback is necessary and important for open and distance learning" (Özkul and Aydin, 2016). Creating discussion environments where the teacher is in the center and provides constant feedback may also result in active

participation of learners. In this case, social networks may also be useful in distance learning. Monitoring the way of interaction of learners with the generated content and controlling the participant's participation in the learning activities can also make it easier for the teacher to give feedback. For this reason, analytics of educational materials such as pdf, PowerPoint, traditional or interactive video presented to the students is an important element that can be fed to give feedback. This monitoring process can be done using SCORM packaging, a national e-learning standard for material preparation. Specialized content development tools can be used for more detailed monitoring process. One of example of these tools is Streamx. It may facilitate monitoring of students as it produces analytical reports about the duration of videos watched by learners, answers given by learners to questions in the video, the part of videos replayed by learner, the part of videos stuck by learners, the most clicked part of videos and etc. Wowslides , enables users to turn PowerPoint slides and all of their features(animations, transitions effects, links, buttons, etc.) to Html5 and to get SCORM output of them, is a good tool for monitoring students' process by keeping records that which slides are displayed and how many time they are displayed.

The communication is also important issue in this approach and it can be provided via chats, e-mails and messaging systems in learning management systems. Thus, it is a good idea to use LMS systems integrated with developed content authoring tool.

## 2. Constructivist Approach and Distance Education

Constructivism is mostly known as a student-centered approach. Cognitive constructivists act based on the theory of Piaget and views of Ernst von Glasersfeld and they emphasize that learning occurs when the expectations of learners are not satisfied as learners have to analyze the conflict between expectations and satisfied things. As it is expressed by Piaget, it is unstable situation and individuals will be actively involved in the information creation process to remove this situation. The importance of the culture and the mental models of the individuals in the process of knowledge creation are emphasized (von Glasersfeld 1995, 1996). However, social constructivists place more emphasis on collaborative processes. They states that knowledge is formed by interacting with the social environment of individuals (Airasian ve Walsh 1997, Tynjälä, 1999, Duffy & Cunningham 1996). Knowledge is not independent from the person who knows and it is built with experiences. Thus, "knowing" is a matter of comment and the aim of learners is to built their own knowledge. According to personal constructivists, knowledge emerges in mind when cognitive structures and experiences are reorganized. According to social constructivists, knowledge is formed via social interaction (von Glasersfeld, 1989; Vygotsky, 1978). Cobb (1994), states that two approach are complementary to each other

(Gürol M & Demirli A.G.C). Constructivism in terms of educational philosophy argues that knowledge is interpreted (Yıldırım & Şimşek, 1999) and built as a result of mutual reflection and debates (Vygotsky, 1994). Students construct stimuli based on their own knowledge and their environments (Ataizi, 2001)( Günter, T., Güneş, E. Ö., & Demir, E. O. (2012)).

Constructivism is concerned with the development of the skills of students as well as with the delivery of learning-teaching activities. For this purpose, teaching activities should be equipped with individual contributions and topic contents that make tremendous impact in the environment (İşman, A., 2011). Today, distance learning systems comply with constructivism as it provides the learning environment needed by constructivism. Concepts such as problem solving, collaborative work, learning by doing, individual learning, student-centered teaching, creativity development can be applied in the constructivist approach.

Students try to solve the identified problem using information technology products. In the constructivist approach, the role of the teacher in the traditional approach has also changed. The teacher do not teach student information, but guides the student to access information (Özkul, A. E., Mutlu, M. E., & Öztürk, C. ,2003).

One of the great advantages of using the constructive approach in Internet-based teaching is that it allows the use of concept maps or semantic webs. Providing visual presentation through schematization of the relationship between the concepts forms the concept maps. Concept maps provide the convenience of presentation to students by connecting the concepts hierarchically. Concepts may not always need to be hierarchical to each other.

Linking semantically interconnected or interrelated concepts helps students to construct their own knowledge. The Internet environment provides a natural environment in which concepts can be interconnected and the learner can re-develop his or her knowledge. They learn to link their knowledge with their previous or parallel learning. (Özkul, A. E., Mutlu, M. E., & Öztürk, C. ,2003).

In constructive instructional design, technology enables students to build their knowledge through collaborative processes in problem solving, to ensure that the learner is in relevant and meaningful contexts and to associate learning with their own experiences. Alkan and others (1995) classify the usage patterns of technology as "empty and full" technologies. The phrase "full technologies" emphasizes the function of technology in the traditional instructional design where the technology is the assistant of teacher functions as it provides information to the students. "Empty technology" determines the purpose of use of technology in constructive instructional design where the function of technology is to help learners to learn in meaningful way. In other word, technology is used to support students rather than limit students as they are in objective design (Gürol M & Demirli A.G.C).

While the students are in contact with the teacher through the distance education system, they can also communicate with other learners and share information and experience at the same time. The teacher is a guide in the constructivist approach and he / she can only teach the basic part of the subject and design the lesson in a way that enables students the discover the remain part via discussion based on questions asked by the teacher through the system, and research findings provided by students.

The constructivist approach can be used to evaluate students in the distance education system via portfolio assignments, open-ended questions or their participation in discussions.

Nowadays, the use of distance education systems is constantly increasing. The appropriate usage of these systems supported by enriched content based on constructivist approach can ensure permanent and effective learning.

### 3. Distance Education and Individual Differences

Until very recently, many think of places like schools or colleges where some fundamental information and skills are taught to children by a teacher in a scheduled time when seeing or hearing the word of education. Along with the process of transformation to information society after industrialization, almost every society on has had to keep pace with this rapid change and has been searching for new educational models according to changing social and economic needs. The distance learning has emerged as a result of these searches (Girginer, 2002).

According to United States Distance Learning Association (1998), distance education is the acquisition of knowledge and skills through mediated information and instruction, encompassing all technologies and other forms of learning at a distance. The first distance education practice was began in England in 1840 by Isaac Pitman who offered shorthand instruction via correspondence (Kaya, 2002). This becomes role model for other countries and many of them offered distance education for masses. Prominent materials used on in distance education by period as follows; printed materials from 1930 to 1950, radio, television and video from 1950 to 1980, computer from 1980 to 1995 and web technologies after 1995 (Özbay, 2015).

Distance education is designed to meet the educational needs of the masses who live in same or different geographical locations with varying interests, abilities, ages, learning levels, working conditions (Ekici, 2003). Masses are also responsible their learning to a great extent, as distance education based on autonomous learning (Şenyuva, 2013). Experienced educators have long supported the notion that individual differences play an important role in learning and instruction. They agree that learners filter instruction through a set of individual lenses (Jonassen & Grabowski, 1993) and tend to manipulate

perceived information in different ways, achieve understanding at different rates and in various learning context (Moallem, 2007:217). Leigle & Janicki (2006) offered solutions to these problems, arguing that by customizing learning modules for differing student types, the learning outcome would be increased (Lu, Jia, Gong, & Clark, 2007 : 187). Hence, I made research about the relationship between some individual differences in learning and distance education. Researches have shown that in distance education, unlike in the traditional formal education method, there has been no significant connection between academic performance and gender, race or other demographic features ( K r, atalođlu and Erbay, 2013).

Nowadays it was observed that learning styles come to the forefront in studies focused on distance education students' characteristics (Bayrak, Karaman ve Aydemir, 2012: 232). It is defined by Keefe (1979) as the whole of the cognitive, affective and physiological indicators of the characteristics of individuals in perceiving, interacting with, and responding to the learning environment. Dunn and Dunn (1978) stated that students with different learning styles have distinct preferences during different instructional activities. Thus, various models have been proposed by theoreticians and used by educators in order to measure learning styles, and various instruments have been used. Some of these models are "Gregorc's Learning Style Model", "Myers and Briggs Learning Style Model", "Felder and Silverman Learning Style Model" and "Kolb's Learning Style Model". According to akirođlu (2014), research studies on learning styles have shown that learning can be enhanced through consideration of personal characteristics in design and delivery of the instruction (Dziuban, Moskal, & Hartman, 2004; Fearing & Riley, 2005). In this context, researchers used these learning styles models to design distance learning environments and investigated its effect on academic achievements. They found that the distance education students have higher success with the environments that are designed in accordance with the learning styles (Bayrak, Karaman ve Aydemir, 2012; akirođlu, 2014; Cela, Sicilia and S nchez-Alonso, 2016).

One of studied individual differences is self-regulation. In general, students can be described as self-regulated to the degree that they are metacognitively, motivationally, and behaviorally active participants in their own learning process (Zimmerman, 1989). Self-regulated learning (SRL) involves a student's effort to manage learning processes systematically oriented to achieve goals (Zimmerman & Schunk, 2011). Studies have reported that students' SRL is important to determine successful learning experiences (i.e., satisfaction and achievement) in technology-mediated learning environments (Artino, 2008; Greene & Azevedo, 2009). Designing a self regulated distance learning requires learners to interact with the structure and dialogue of the course. Structure is the degree to which the course accommodates learners' preferences and needs in terms of course objectives, goals, and evaluation and it is frequently provided with a study guide

that sequences activities and assignments and leads learners through the course. Dialogue refers to the interaction between the learners and teacher, and is built into the design of the course and it is provided with assessment feedback, which helps learners review their progress and provides meaningful interaction. As learners interact with the structure and dialogue of the course and develop selfregulated learning skills, they reflect on and monitor their performance, set new goals, and continue to improve and build on the strategies they encounter and practice. The last stage of the process is becoming a self-regulated learner, with increased capacity for autonomous learning (Andrade and Bunker, 2009). In this context, some researchers investigated on self regulated distance learning and academic achievement. They found that self-regulation is positively correlated with students' achievements and satisfaction as students can control their performance in self regulated distance learning environment (Andrade and Bunker, 2009; Cho and Shen, 2013; Puziferro,2008).

In conclusion, learners have different background, learning styles, motivation, skills etc. Distance education serves them as an alternative to traditional education in order to create equity in education opportunity; hence it should be designed based on learners differences. The researches i made shows that distance learning environments designed based on learners needs have positive effect on their academic success, motivation and so on. So, it is a good idea that future studies may focus on different learners characteristics and distance learning environments.

#### 4. Conclusion

Bu arařtırmada yapılan deđerlendirmelerin neticesinde uzaktan eđitim sistemleri ierisinde kavramsal olarak ifade edilen  đretim y netim sistemleri ve sanal sınıf uygulamaları iin sunuř yoluyla  đretim stratejisi uzaktan eđitim platformları iin en  nemli strateji olarak karřımıza ıkmaktadır. Bu durum hernekadar klasik bir y ntem olarak anılsada sunuř yoluyla  đretim stratejisinin vazgeilmezliđini  n plana ıkartmaktadır. Ancak bu  đretim stratejisini yapısalcı  đretim modelinin temel bilgi ve becerilerin kazandırılması b l m nde efektif olarak kullanmak sunuř yoluyla  đretim stratejisini  nemli bir kazanım haline d n st recektir. Ayrıca bu arařtırmanın neticesinde uzaktan eđitim sistemleri iin bireysel farklılıklara  nem veriyor olmanın geleceđin uzaktan eđitim ortamları iin  nemli bir kırılma noktası olduđu g zlenmektedir.

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