

Eurasian Academy of Sciences Eurasian Studies / Avrasya Çalışmaları 2022 Volume:15 S: 33-41

Published Online December 2022 (http://eurasian.eurasianacademy.org) http://dx.doi.org/10.17740/eas.eus.2022-V15-03

RETHINKING TRANSACTIONAL DISTANCE THEORY IN DANCE EDUCATION IN THE POST-DIGITAL AGE¹

(Sample of Sakarya University State Conservatory Turkish Folk Dances Department)

Dilek CANTEKİN ELYAĞUTU*, Kerem Cenk YILMAZ**

- * PhD, Sakarya University State Conservatory Turkish Folk Dances Department, dcantekin@sakarya.edu.tr
- ** Assoc. Prof. Sakarya University State Conservatory Turkish Folk Dances Department, kcyilmaz@sakarya.edu.tr

Received Date: 11.06.2022. Revised Date: 19.08.2022. Accepted Date: 25.11.2022

Copyright © 2022 Kerem Cenk Yılmaz and Dilek Cantekin Elyağutu. This is an open access article distributed under the Eurasian Academy of Sciences License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

Abstract

Transactional distance is one of the basic theories of distance education. Developed by Michael Graham Moore, this theory was based on the concept transaction used first by John Dewey. In this theory comprised of two basic dimensions as distance (structure and dialog) and autonomy, the factor affecting learning is stated to be a communicative distance apart from a physical gap. So, what does the communicative distance mean in the post-digital era and does it hinder learning?

In the current study, we aim to criticize on the functionality of the theory during these days when we go beyond the digital era as we try to explain our experience that I have gain as a result of distance education we have been maintaining for approximately one and a half year via the transactional distance concept. In the south eastern Europe, Turkey is a region that still preserves its traditional environment and methods in the transfer of traditional dance practices. Being in one-to-one communication, touching, sharing in the performance environment are important factors for the teaching of Turkish Folk Dances. In this context, another aim of the study is to discuss the effect of distance education on traditional dance culture in Turkey.

The conceptual framework of the study is comprised of the concepts of distance education, transactional distance theory, digitalism/post-digitalism, digital native and digital immigrant. The document survey will be applied to as the method.

Keywords: Transactional distance, digitalism, distance education, dance education.

DİJİTAL SONRASI ÇAĞDA DANS EĞİTİMİNDE İŞLEMSEL MESAFE KURAMINI YENİDEN DÜSÜNMEK²

(Sakarya Üniversitesi Devlet Konservatuvarı Türk Halk Oyunları Bölümü Örneği)

Özet

İşlemsel Mesafe (Transactional Distance) uzaktan eğitimin temel kuramlarından bir tanesidir. Michael Graham Moore tarafından geliştirilen bu teori, ilk defa John Dewey tarafından kullanılan "interaction" kavramı üzerine temellendirilmiştir. Uzaklık (yapı ve dialog) ve özerklik olmak üzere iki temel boyuttan oluşan bu kuramda, öğrenmeyi etkileyen faktörün fiziksel uzaklık dışında iletişimsel bir boşluk olduğu ifade edilir. Peki post-dijital dönemde iletişimsel boşluk neyi ifade etmektedir ve öğrenmeye engel midir?

¹ This article was presented as a paper at the 8th Symposium of the ICTM Study Group on Music and Dance in South-eastern Europe, 2022 May.

² Bu makale Mayıs 2022'de Güneydoğu Avrupa'da Müzik ve Dans üzerine ICTM Çalışma Grubu 8. Sempozyumunda bildiri olarak sunulmuştur.

34

RETHINKING TRANSACTIONAL DISTANCE THEORY IN DANCE EDUCATION IN THE POST-DIGITAL AGE

(Sample of Sakarya University State Conservatory Turkish Folk Dances Department)

Covid-19 salgınının dünyaya yayılmaya başladığı dönem itibari ile eğitimin her alanda olduğu gibi, konservatif müzik ve dans eğitiminde de uzaktan eğitime geçilmiştir. Uzaktan eğitime geçilmesi ile dijital medya araçlarının öğretime ve öğrenmeye stratejilerine etkin bir biçimde dâhil edilmesi olağan bir süreçtir. Bu da öğretici-öğrenci arasında alışılmışın dışında bir iletişimin oluşması anlamına gelmektedir. Özellikle geleneksel dans öğretiminde olumsuzlukları üzerine yorumlanan bu yeni durumun zaman geçtikçe bir materyal sıkıntısından kaynaklandığı tecrübe edilmiştir.

Hedef kitlemiz olan öğrenciler zaten 1990 lı yıllardan sonra doğmuş "dijital yerli" olarak adlandırılan ve dijital hayata doğan bireylerdir. Öğretiler se 1990 lı yıllardan önce doğmuş dijital göçmen olarak adlandırılan nesillerdir. Bu durum post-dijital dönemde bir paradoksa sebep olmaktadır. Post-diital çağda dijital yerli olarak adlandırılan neslin öğrenme davranışları transactional uzaklık kuramına ile açıklanabilir mi? İletişimsel mesafe kim için sorun yaratmaktadır? Oluşturduğumuz dijital ortam içerikleri bu kuram dâhilinde bir anlam kazanır mı, yoksa kuram üzerine yeniden düşünmek mi gerekir?

Mevcut çalışmada yaklaşık olarak bir buçuk yıl sürdürdüğümüz uzaktan eğitimde edindiğimiz tecrübelerimizi, İşlemsel Mesafe (Transactional Distance) kuramı ile açıklamaya çalışırken bir taraftan da dijital çağın ötesine geçtiğimiz bu günlerde, kuramın işlevselliği üzerinde eleştiri yapmayı hedeflemekteyiz.

Çalışmanın kavramsal çerçevesini, uzaktan eğitim, transactional uzaklık kuramı, dijitalizm/post-dijitalizm, dijital yerli ve dijital göçmen kavramları oluşturmaktadır. Yöntem olarak belgesel tarama yöntemi kullanılacaktır.

Anahtar Kelimeler: İşlemsel mesafe, dijitalizm, uzaktan eğitim, dans eğitimi.

Introduction

In the period as the Covid-19 pandemic started to spread across the world, conservative music and dance education has also transitioned to distance education as in every area of education. Effective inclusion of digital media tools in teaching and learning along with the transition to distance education is an ordinary process, which means an extraordinary communication between teacher-learner emerges. Especially, it was experienced that this new situation, which is considered as a negative situation in traditional dance education, is caused by a shortage of materials over time.

Students who are our target group are already individuals born after the 1990s who are called "digital natives" and born into digital life. And teachers are generations named as digital immigrants born before the 1990s. This situation leads to a paradox in the post-digital era. Can learning behaviors of the generation called digital natives in the post-digital era be explained by transactional distance theory? For whom does communicative distance cause problems? Does the content of the digital environment we create make sense within this theory, or should we rethink the theory?

When we consider the phases of distance education around the world since the letter education and the current stage "As the form and size of distance education has changed, the roles of the instructor and student elements and their participation in education have also changed. Since the first periods of distance education until today, Web-based systems have unique features, through these systems, teachers; Rather than being the only source of information, they have taken on many roles such as resource provider, learning manager, instructional designer, assessment specialist, communication specialist, technologist, consultant and guide. (Horzum, 2016).

In the current study, we aim to criticize on the functionality of the transactional distance theory during these days when we go beyond the digital era as we try to explain our experience that I have gain as a result of distance education we have been maintaining for approximately one and a half year via the transactional distance concept.



For the purposes of our study, we will seek answers to the following questions.

- **1.** What is transactional distance?
- **2.** What are the factors affecting learning in transactional distance?
- **3.** Can it be said that the perception of transactional distance is effective in the digital age?
- **4.** Is there a significant relationship between traditional dance training and transactional distance?
- 5. What do our experiences tell us?
- **6.** Is the connection between Dewey's concept of interaction and TD theory perceived correctly?

In order to get answers to our research questions, the relevant literature will be scanned. The experiences we have gained during the distance education process will be tried to be associated with the relevant literature. With this method, the relationship between the quality of the distance education practice in Turkish folk dance departments and the theory of Transactional Distance will be examined.

A Brief Overview of Transactional Distance Theory

Before the start of the criticize we need to discuss about the concept interaction of Dewey and its connect to concept transaction. Dewey express that "the word interaction, which has just been used, expresses the second chief principle for interpreting an experience in its educational function and force. It assigns equal rights to both factors in experience-objective and internal conditions." (Dewey, 1938, p.42). Moreover, this interaction cannot be separated from the environment (or surroundings) in which it occurs (Giossos, Kousouba, Lionarakis & Skavantzos). Interaction is a natural process that occurs as a result of a transaction between a phenomenon, event, concept, and person. For a transaction to take place, there must be a mutual interaction. Transactional Distance theory developed on Dewey's concept of interaction has started to be used in a way that comes out of the essence of the concept over time. In the following sections of the text, we will try to support this hypothesis with literature.

The developments in information and communication technologies and the changes in the education paradigm have become questionable in distance education, such as distance, interaction, community perception, and working in collaboration with the group. As a result of this, Moore put forward the transactional distance theory in distance education after working intensively on distance (Gökmen, Duman ve Horzum, 2016, p. 38).

In his studies between 1960 and 1990, Moore sought solutions to the problems related to distance education and was interested in the inhibition of learning due to the lack of warning in the functioning of distance education. Moore (1972) first put forward the theory of "Learner autonomy: These conddimension of independent learning", which deals with student autonomy. This theory developed over time and became the "Transactional Distance" theory (Horzum, 2013, p. 161).

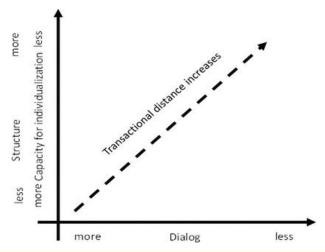
As Moore & Kearsley (1996) Transactional Distance (TD) is a psychological and communication space of potential misunderstanding between the inputs of instructor and those of the learner; it is not only a physical space (Horzum, 2011, p. 1582). The Transactional Distance Theory consists of two basic dimensions. These; distance and student autonomy. Distance, on the other hand, is divided into two branches as structure and dialogue.

RETHINKING TRANSACTIONAL DISTANCE THEORY IN DANCE EDUCATION IN THE POST-DIGITAL AGE

(Sample of Sakarya University State Conservatory Turkish Folk Dances Department)

By the transmission of Zhang (2003), Moore (1997) refers to is the nature of the course structure, which is described as the level of the course's rigidity or flexibility. This factor includes aspects such as the extent to which course goals and objectives are pre-prescribed, the pedagogical model used in teaching the course (e.g., teacher- vs. student-centred), the nature of course assessment, and the ability of the course to accommodate individual student needs (Fallon, 2011). The structure of a lesson; It can be flexible or rigid, depending on student needs, technology used, and instructional design. The structure defines the extent to which an educational program can meet or respond to students' individual learning needs. Kearsley and Lynch (1996) supports that Stow (2005) states video-based lessons are mostly structured learning materials. There is no room for discussion, questioning and feedback in such a course. In flexible and purposefully structured lessons, students are in a participatory and active position regarding their own learning processes (Yılmaz & Keser, 2015, p. 42-44).

As Moore and Kearsley (2011) dialogue is the process of mutual influence of the parties as a result of the sharing of information, feelings or thoughts that occur in the communication of the students with each other or with the teacher (Horzum, 2007). According to Evans and Nation (1989) The concept of dialogue is the active participation of students in the process of creating and changing meaning. Dialogue also includes the student's internal communication with herself (Horzum, 2007).



Shape 1: Relationship of structure and dialogue to transactional distance (Delgaty, 2018)

Swain (2002) expresses it as, some elements that affect the formation of dialogue in distance education environments; the environment used, the educational philosophy of the activities in the design of the lessons, the personality structure of the teacher and the student, the main theme of the subject and environmental factors. Environmental factors are very important here (Horzum, 2010, p.103). Another dimension is student autonomy. As Giossos et al., (2009) Learner autonomy is intimately tied in with a learner's sense of self-direction or self-determination, and this can be significantly affected by the dialogue, the level of rigidity or flexibility inherent in the course design and delivery, and the "extent to which the learner exerts control over learning procedures (Falloon, 2011). According to the transactional distance theory, the perception of TD will decrease as the dialogue increases.

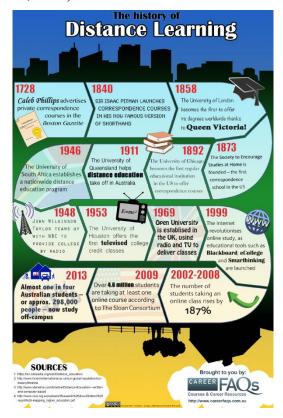
Distance Education

Depending on the developments in information and communication technology, the interaction tools and environments used in distance education differ and diversify. Especially with the use of web 2.0 technology in online learning, asynchronous such as e-mail, forum, wiki, blog, podcast; Simultaneous interaction tools and environments such as chat,



whiteboard, video and web conferencing have started to be used in online learning. These synchronous and asynchronous interaction tools and environments offer various opportunities to improve the quality of dialogue (Yılmaz & Keser, 2015). Keegan (2006) stated that with the increase in the success of open universities, especially between 1970 and 2000, many countries provided distance education opportunities to individuals and the role of distance education complementary to traditional education was studied" (Gökmen, Duman & Horzum, 2016, p. 30).

From the first period of distance education to this day, teachers; Rather than being the only source of information, they have taken on many roles such as resource provider, learning manager, instructional designer, assessment specialist, communication specialist, technologist, consultant and guide (Horzum, 2016). The problem of our study is to start from this point. Digital natives consist of 21st century children and youth who started their lives with today's technologies, where online environments and new technologies are at the center of their lives, and who carry out all their daily work with technology. On the other hand, digital immigrants consist of a generation that tries to adapt to the environments where these technologies are used and finds itself in a new process with the development of technology (Bilgiç, Duman & Seferoğlu, 2011). Prensky (2001) defined "Digital Natives as individuals who receive information very quickly, enjoy parallel learning and multitasking, prefer to use graphics instead of text, and at the same time prefer flexibility - random access - in accessing information" (Ardıç & Altun, 2017).



Shape 2: The History of Distance Learning (Visually by Rockcontent, 2022)

As it can be seen in the shape 2, digital natives, have never experienced the primitive times of distance education. They are the learners of the digital age and now we are not using the traditional teaching methods.

38



RETHINKING TRANSACTIONAL DISTANCE THEORY IN DANCE EDUCATION IN THE POST-DIGITAL AGE

(Sample of Sakarya University State Conservatory Turkish Folk Dances Department)

- What is the real problem of digital natives?
- They have already learnt the things on media tools, social media, you tube etc...
- Now, why they refused the distance education? Or who refused?
- Does the TD effect the teaching and learning activities?
- How the dance education was effected?
- What about the sustainability of traditional dance practice? We will discuss the questions in next section through our sample.

What does Transactional Distance Theory Mean in Turkish Folk Dance Department in The Post-Digital Age

On March 12, 2020, when the Ministry of Health announced the first case in our country, education was suspended for a week at Sakarya University. During this one-week period, action plans were created in order to carry out the education system. In the first instance virtual programs virtual classrooms training programs were created for theoretical courses. After that applied courses were included in the program. As teachers, we had to plan our lessons and as administrators, we had to manage the education process well, follow it carefully, make accurate determinations and analyses, and produce functional solutions. In 2020, we published the study titled "Distance Education Model Proposals in the Digital Transformation Process for Turkish Folk Dances Major-Sakarya University State Conservatory Turkish Folk Dances Department Sampling (Yılmaz & Cantekin Elyağutu)". With this study, we tried to convey distance education suggestions and preferred methods for Turkish folk dance departments.

Many researchers say that qualified interactions between student-student and student-teacher are also necessary for structuring knowledge and analysing mental structures. Braxton (2000); Kostina (2011); Wagner (1994) also state that interaction will provide learner autonomy and student motivation in a distance education environment" (Yılmaz & Keser, 2015, p. 40). For this reason, in order to increase student autonomy and increase interaction, we tried to configure the distance education classes as flexible as the service providers allowed preferred by our university. More or less all the universities manage the distance education like that. Some departments made synchrony classes during the traditional dance class. For ex. Ege University State Turkish Music Conservatory Turkish Folk Dance Department applied this method. But we did not choose it. Because we knew that this would cause a disadvantage for our students. If we ran the lessons synchronously then we could talk about the negative effects of transactional distance

We applied a flexible structured model to reduce the effects of Transactional Distance in distance education. We made the students watch the instructional videos in virtual classrooms by screen sharing. We got feedback from students at the same time. In Sakarya University Turkish Folk Dances Department we have turned the disadvantages of distance education into an advantage by using the system effectively. Since the virtual classroom course records of the previous period are archived in the system, we can also use these materials in face-to-face education. We were able to organize surveys during the lesson and we were able to do online exams. Since digital natives are a generation that prefers to use graphics instead of text, we have increased the success level in lessons where symbols and icons are used such as movement notation. I can say that in the virtual synchrony classes students are more successfully than the teachers. The weakest aspect of the system is that we have not been able to apply the measurement and evaluation system correctly.



Conclusion

The data we have obtained and observed during the distance education we have carried out for one and a half years, that is, 3 terms, has shown that, In Turkish Folk Dances, the biggest problem was the student's space problem in simultaneous synchronous lessons in distance education. For this reason, the trainings were supported by video. Flexible space was left for the student for assessments. In other words, the **structure** was stretched, **dialogue** and **autonomy** were increased. In this way, the perception of **transactional distance** was reduced. At this point, we would like to go back to the beginning of our article and question whether the connection between Dewey's concept of interaction and transactional distance is effective in distance education.

Maria Koutsouba and some of her friends had a significant cooperation about Transactional Distance, and their comments are really remarkable. They discussed that the Transactional Distance on the concept of Dewey's interaction and in connection with this concept they criticize what learning is or is not. In the current study they often emphasize that Dewey did not imply that thinking as a product of human interaction with the environment but as a tool through which man controls and guides this interaction (Giossos, Koutsouba, Lionarakis, & Skavantzos, 2009).

"Dewey refers to this type of interaction concerning knowledge as *transaction*, because at the time, interaction was defined as a simple relationship of action-reaction, applied only to a mechanistic relationship between entities (animate and inanimate) and which alluded to relationships of cause and result. Thus, the term interaction could not express the deeper process through which knowledge is acquired. According to this view, knowledge is an activity of constructing concepts. At the same time, knowledge is an adaptive human response to the conditions of the environment that aims at the reconstruction of these conditions through the construction of concepts. Additionally, knowledge does not concern the way things are, but the relationship between actions, such as the construction of concepts, and the consequences of these actions. Concluding, according to Dewey, the use of the idea of *transaction* requires that man and his environment cannot be viewed independently form one another" (Giossos, Koutsouba, Lionarakis, & Skavantzos, 2009, p. 3).

As a result of all these discussions we can speak the outcomes of our experiences honestly. The existing literature and our observations have shown that the relationship between the perception of transactional distance in the distance education process and Turkish folk dance programs is quite low. The main resistance in the process is the teachers' resistance to the digital environment, their inability to produce materials. The demands for folk dance departments have been already gradually decreasing in in last decade. In the distance education process, the financial difficulties caused by the pandemic have pushed the young people not to prefer art schools. As Sakarya University State Conservatory, we were able to fill only fifty percent of our quota in the 2020 talent exams. Many conservatories experienced the same situation like us. This puts departments at risk of being shut down.

According to our observation, the main problem in dance training in distance education is not a learning problem based on transactional distance perception. As we mentioned at the beginning of our article, the learners of the 21st century are digital natives. For them, access to all kinds of information is possible without the restriction of time and place. However, especially in cases such as traditional dances, which are fed by tradition and whose formation-dissemination processes are based on social repetition practices; elements such as face-to-face, contact, high-level dialogue, togetherness are vital and indispensable. However, it has been experienced that this pandemic can also be overcome and that the togetherness, albeit virtual, arising from collective dance acts in virtual environments is a source of social motivation. Turkish folk dances have 2 missions. One is education and training and the other

40

RETHINKING TRANSACTIONAL DISTANCE THEORY IN DANCE EDUCATION IN THE POST-DIGITAL AGE

(Sample of Sakarya University State Conservatory Turkish Folk Dances Department)

is demonstration (representation) processes. Our output was organic. No matter how remote the education is, it is fixed by the measurements and evaluations we make, a physical unity and space are required for the stage-transfer process.

REFERENCES

- Anderson, T. (2003). Getting the Mix Right Again: An Updated and Theoretical Rationale for Interaction. *International Review of Researchin Open and Distance Learning*, 4(2), 1-14.
- Ardıç, E., & Altun, A. (2017). Dijital Çağın Öğreneni. *Uluslararası Sosyal Bilgilerde Yeni Yaklaşımlar Dergisi*, p. 12-30.
- Bilgiç, H. G., Duman, D., & Seferoğlu, S. (2011). Dijital Yerlilerin Özellikleri ve Çevrim İçi Ortamların Tasarlanmasındaki Etkileri. p. 1-7.
- Delgaty, L. (2018, September 5). *Multimedia Production and Digital Storytelling*. November 2022, Accessed on https://www.intechopen.com/chapters/64010
- Braxton, S. N. (2000). Empirical Comparison of Technical and Non-Technical Distance Education Courses to Derive a Refined Transactional Distance Theory as The Framework for a Utilization-Focused Evaluation Tool. PhD. Thesis, George Washington University.
- Dewey, J. (2005). Experience & Education. New York: Simon & Schuster Inc.
- Evans, T. & Nation, D. (1989). Dialogue in Practice, Research and Theory in Distance Education. *Open Learning*, 4(2), 37-42.
- Falloon, G. (2011). Making the Connection: Moore's Theory of Transactional and Its Relevance to the Use of a Virtual Classroom. *Journal of Research on Technology in Education*, 187-209.
- Garrison, D. R. & Shale, D. (Eds.). (1990). *Education at a Distance: From Issues to Practice*. RE Krieger Publishing Company.
- Giossos, Y., Koutsouba, M., Lionarakis, A., & Skavantzos, K. (2009). Reconsidering Moore's Transactional Distance Theory. *Hellenic Open University*.
- Gökmen, Ö., Duman, İ., & Horzum, M. B. (2016). Uzaktan Eğitimde Kuramlar, Değişimler ve Yeni Yönelimler. *AUAD*, 29-51.
- Horzum, M. B. (2007). İnternet Tabanlı Eğitimde Transaksiyonel Uzaklığın Öğrenci Başarısı, Doyumu ve Özyeterlilik Algısına Etkisi. *Yayınlanmamış Doktora Tezi*, Ankara Üniversitesi, Eğitimi Bilimleri Enstitüsü, Ankara.
- Horzum, M. B. (2011). Developing Transactional Distance Scale and Examining Transactional Distance Perception of Blended Learning Students in Terms of Different Variables. *Educational Sciences: Theory & Practice*, 1582-1587.
- Horzum, M. B. (2013). Uzaktan Eğitimde Transaksiyonel Uzaklığın Öğrencilerin Özyeterlilik Algısına Etkisi. *Eğitim Bilimleri ve Uygulama*, 159-174.
- Kearsley, G. & Lynch, W. (1996). Structural Issues in Distance Education. *Journal of Education for Business*, 71(4),191-195.
- Moore, M. G. (1972). Learner Autonomy: The Second Dimension of Independent Learning. *Convergence*, *5*(2), 76-88.
- Moore, M. G. & Kearsley, G. (1996). *Distance Education: A systems view*. New York: Wadsworth.



- Moore, M. G. & Kearsley, G. (2011). *Distance: A Systems View of Online Learning*. Cengage Learning.
- Keegan, D. (1996). Foundation of Distance Education (Third Edition). London: Routledge.
- Yılmaz, K. C. & Elyağutu, D. C. (2020). Türk Halk Oyunları Anasanat Dalları İçin Dijital Dönüşüm Sürecinde Uzaktan Eğitim Model Önerileri. *Müzik Kültürüne Dair Çeşitli Görüşler* (s. 116-127). Konya: Eğitim Yayınevi.
- Kostina, M. V. (2011). Exploration of Student Perceptions of Autonomy, Student-Instructor Dialogue and Satisfaction in a Web-Based Distance Russian Language Classroom: A Mixed Methods Study. PhD Thesis, University of Iowa.
- Pascarella, E. T. ve Terenzini, P. T. (2005). *How College Affects Students: A Third Decade of Research*. 2nd K. A. Feldman (Ed.). San Francisco: Jossey-Bass.
- Prensky, M. (2001). Digital Natives, Digital Immigrants. NCB University Press, 9 (5).
- Stow, R. C. (2005). Minimizing The Distance in Distance Learning. *Athletic Therapy Today*, 10(2), 57-59.
- Swain, C. (1996). Improving Traditional Teaching Using Findings from Distance Education. *Journal of Effective Teaching*, *I*(1). http://www.uncw.edu/cte/et/articles/Swain Accessed on 12.12.2014.
- Wagner, E. D. (1994). In Support of a Functional Definition of Interaction. *American Journal of Distance Education*, 8(2), P. 6-29.
- Visually by Rockcontent. (2022, November). Received from https://visual.ly/community/Infographics/education/history-distance-learning
- Yılmaz, R., & Keser, H. (2015). Transactional Distance Perception and Its Reflection on Distance Education Practices. *Ankara University, Journal of Faculty of Educational Sciences*, P. 37-59.
- Zhang, A. (2003). Transactional Distance in Web-Based College Learning Environments: Toward Measurement and Theory Construction. PhD Thesis, Virginia Commonwealth University.