

## Research Tendencies in the Discipline of Distance Education (2015-2022): Examination of Doctoral Theses in Higher Education in Turkey

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### Abstract

The discipline of distance education is evolving and becoming mainstream, and this view requires examining research tendencies in the field. Motivated by this justification, it can be argued that understanding distance education to the fullest extent is possible partially through examining changes in theory and practice, as research conducted in the field reflects changes, dynamics, and perspectives. In this regard, the purpose of this paper is to present the research tendencies in doctoral theses in the Turkish higher education context with a specific focus on distance education. In line with this aim, a total of 265 doctoral theses published between 2015 and 2022 were examined through data mining and analytics approaches. The analysis of the titles through t-SNE analysis revealed four broad themes. These are: (1) more emphasis on learning processes; (2) the comparison of online technologies and online learning spaces; (3) a strong focus on educational technologies; and (4) the limitations emerging from comparative studies. The examination of the abstracts through text-mining identified the following themes: (1) the methodological vicious circle, the pursuit of methodological perfection, and lack of critical perspectives; (2) the tendency to use online [educational] technologies; (3) the comparison of distance and face-to-face education; and (4) the design of social interaction and communication in distance education processes. Finally, the analysis of the keywords through word clouds surfaced the following research tendencies: (1) Technology-supported distance education processes; (2) the wide use of educational technologies; (3) focusing on issues related to the learners in distance education. The paper concludes with implications and recommendations for future research directions.

**Keywords:** *Open and Distance Learning, Open Education, Distance Education, Online Learning, Educational Technologies.*

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## INTRODUCTION

We need to understand the past, draw inferences from experiences, and create strategic roadmaps in that direction to understand the future and properly position ourselves in the scholarly landscape as researchers. The balance of power is determined by access to information and knowledge in today's [digital] information age, and distance education, as an interdisciplinary field, has adapted itself to this process as the world changes and develops, along with studies on the theory and practice through academic work. The dynamic nature of distance education makes it necessary to identify research trends and patterns in order to understand the field and develop a multidimensional understanding. This means that there needs to be a thorough understanding and interpretation of changes in the field of distance education. This is where this research comes in, looking at doctoral theses to find research trends and patterns that are emerging in this field. Accordingly, a doctoral thesis is:

*“a formal and lengthy scholarly publication that reports on a research project or study, or an extended analysis of a topic. It is planned to be a work of original research, represent critical thinking, and it is written in partial fulfillment of the requirements for an academic degree or professional qualification. Dissertations [doctoral theses] are an important source of information because they tend to be original and recent, and are written to make a new and creative contribution to [their] field of study. In addition to being original and substantial, they explain [a] scientific procedure, and the statements presented should be correct and defensible in a logical and scientific sense.” (Bozkurt et al., 2015b, p. 2).*

Based on the aforementioned arguments, this paper considers doctoral theses as valid and reliable sources of data and uses them to identify the research tendencies on distance education in Turkish higher education context. On this ground, the purpose of this paper is to present the research tendencies in doctoral theses in Turkish higher education context with a specific focus on distance education.

## RELATED LITERATURE

The number of local and global studies on understanding distance education has increased since it became a mainstream discipline (Bozkurt, 2019), especially following the 2000s. Among the first studies to examine the process of change and transformation were Berge and Mrozowski (2001), who analyzed research trends in 1990 and 1999, and found that pedagogically oriented distance education applications triggered a shift in design approaches. Lee et al. (2004) examined the research trends that emerged between 1997 and 2002 and emphasized the need for new research methods and paradigms due to the changing nature of the distance education field. In their study covering the period between 2000 and 2008, Zawacki-Richter et al. (2009) reported that interaction and communication, instructional design, and the use of educational technologies in online environments are emerging themes.

According to Bozkurt et al.'s (2015a) study, it was revealed that the concept of openness in education and online learning processes is an increasing trend. Bozkurt and Zawacki-Richter (2021) conducted a follow-up study and analyzed studies conducted between 2014 and 2019 on distance education. They identified prominent research

trends and patterns in the areas of distance education and educational technologies, respectively (I) openness and access in distance education, (II) digital transformation, and (III) social learning design in online learning processes. As well as studies dealing with distance education from a holistic and global perspective, there are also studies dealing with distance education in the context of Turkey. Nevertheless, these studies (Aydin et al., 2020; Bozkurt et al., 2019; Zawacki-Richter et al., 2020) provide only a partial perspective or do not fully focus on distance education (Durak et al., 2022).

There are, however, other studies that examine the field of distance education from a holistic perspective by examining the theses produced within the context of Turkish higher education. For instance, Durak et al. (2017) investigated the master's theses published between 1986 and 2015 and found that there was an increasing trend in the use of e-learning processes. The same study also found that, based on Zawacki-Richter's (2009) classification of research areas, education technology, instructional design, and student characteristics were the areas of research that were most extensively studied in distance education (Durak et al., 2017). In another study by Bozkurt et al. (2015b), it was noted that the distribution of the research areas (Zawacki-Richter, 2009) in doctoral theses between 1986 and 2014 was unevenly distributed, and the most studied research areas included instructional design, distance education systems and institutions, education technology, and learner characteristics. In addition to this finding, Bozkurt et al. (2015b) demonstrated a growing trend towards online and e-learning, and revealed that most doctoral theses lack a clear theoretical foundation.

In any research field, it is essential to reveal trends and patterns, to consider the subject from different angles, to complement one another, and to provide a holistic view. This study contributes to this goal by examining the doctoral theses within the Turkish Higher Education System. In this context, the purpose of this study is to conduct a follow-up study by examining doctoral theses that were written from 2015 onwards. A significant difference between the study conducted by Durak et al. (2017) is that the master's theses are not included in the study.

## METHOD

To explore the research tendencies in the discipline of distance education, this study adopted data mining and analytic approaches (Fayyad et al., 2002) such as text mining (Feldman & Sanger, 2007) and t-SNE analysis (van der Maaten & Hinton, 2008) to explore patterns and thematic trends in doctoral theses on distance education between 2015 and 2022.

### Sampling and Analysis Process

Doctoral theses in Turkish higher education were reviewed for this study. Turkish Council of Higher Education (CoHE) has an electronic thesis/dissertation database in which all theses and dissertations are available for researchers (Bozkurt et al., 2022). For this purpose, a total of 265 doctoral theses were included in the research corpus. To identify the related studies, the following keywords were used (see Table 1).

**Table 1.** Search strings

Database	Keywords
Turkish CoHE Thesis/Dissertation Center <a href="https://tez.yok.gov.tr/UlusalTezMerkezi/">https://tez.yok.gov.tr/UlusalTezMerkezi/</a>	"distance education" OR "distance learning" OR "distance teaching" OR "open education" OR "online learning" OR "online education" OR "online teaching" OR "e-learning" OR "electronic learning" OR "m-learning" OR "mobile learning" OR "u-learning" OR "ubiquitous learning"

After building the research corpus, three separate analyses were conducted. First, the titles of the selected doctoral theses were analyzed using t-distributed stochastic neighbor embedding (t-SNE) analysis. Second, lexical analysis of the abstracts was performed to visualize a thematic concept map and to identify major themes emerging from the research corpus. In the third and final stage, a word cloud was used to examine the keywords of the sampled doctoral theses. To increase reliability and validity, doctoral theses in the research corpus were coded by a second reviewer and those which were relevant were added to the final research corpus.

## FINDINGS AND DISCUSSIONS

This section presents findings emerging through data mining and analytic approaches and then discusses by comparing and contrasting them using the related literature.

### t-SNE Analysis of the Titles

The titles of doctoral theses are just as essential as the titles of other research studies in terms of how effortlessly they could be comprehended, the availability of the thesis in an easily accessible format, and how well they portray the research topic. Based on the analysis of the titles in the sampled doctoral theses (See Figure 1), the researchers have identified the following broad themes:

- More emphasis on learning processes
- The comparison of online technologies and online learning spaces
- A strong focus on educational technologies,
- The limitations emerging from comparative studies





Secondly, it is apparent from these summaries that the usage of web technology in doctoral theses is quite prevalent. *System, e-learning, technology - learning, digital, web, design, and computer, remote, internet* are some of the most frequently used online technology phrases. Horzum et al. (2013) analyzed distance education studies in the Turkish context published between 2005 and 2011, and reported that the focus of these studies was web-based education and web technologies. Similarly, master's theses were studied in a different review study conducted within the context of Turkish higher education, and similar to this study's findings, educational technology research was the most prevalent (Durak et al., 2017). In contrast, Davies, Howell, and Petrie (2010) analyzed 308 master's theses and doctoral theses conducted at universities in North America between 1998 and 2007, and discovered that the number of technology-related theses dropped over time. Even though their research results do not match the findings of this study, this could be due to cultural or year-related differences.

According to the results of the analysis, the comparisons between face-to-face classroom settings and online learning environments are among the most important aspects of these studies. This situation is exemplified by the connections between *performance, face-to-face, online, learning, environment, and effective* terms. Additionally, the connections between *traditional, digital, learning, academic, success, and meaningful* concepts bring to light the comparison between face-to-face and distance practices. According to the study by Horzum et al. (2013), studies comparing distance education and face-to-face education were emphasized, and the results of these comparative studies demonstrated that there was no significant difference between the two modes of education. In terms of the intensity of the comparative studies, the findings of these two studies are similar.

What is more, according to the research analyses, one of the most noteworthy findings is the fact that the design of social interaction and communication processes in distance education is commonly chosen as the focus of these doctoral theses. This is one of the most interesting and important findings. The three terms "social," "interaction," and "learning" are the ones that come up most frequently in the research done on the subject of the design of social interaction processes. This finding implies that a shift from instructional design to learning design (Saçak et al., 2022) is appearing in the field of distance education.

### **The Text Mining of the Abstracts**

Based on the analysis of the keywords through the word cloud, the following broad themes were identified (Figure 3).

- Technology-supported distance education processes,
- The wide use of educational technologies,
- Focusing on issues related to the learners in distance education.







self-determined learning are characteristics of distance education (Blaschke, 2012). In addition, Bozkurt and Zawacki-Richter (2021) state that the issues including learners' motivation, attitudes, perceptions, and their competence have been mostly employed in research areas of distance education. Overall, the findings of the present study are in line with the earlier literature (Blaschke, 2012; Bozkurt & Zawacki-Richter) and imply that learners and their self-skills are critical and are still widely researched in doctoral theses in Turkish Higher Education context.

## DISCUSSION AND CONCLUSION

This paper examined a total of 265 doctoral theses published between 2015 and 2022. The analysis of the titles through t-SNE analysis revealed four broad themes. These are: (1) more emphasis on learning processes; (2) the comparison of online technologies and online learning spaces; (3) a strong focus on educational technologies; and (4) the limitations emerging from comparative studies. The examination of the abstracts through text-mining identified the following themes: (1) the methodological vicious circle, the pursuit of methodological perfection, and lack of critical perspectives; (2) the tendency to use online [educational] technologies; (3) the comparison of distance and face-to-face education; and (4) the design of social interaction and communication in distance education processes. Finally, the analysis of the keywords through word clouds surfaced the following research tendencies: (1) Technology-supported distance education processes; (2) the wide use of educational technologies; and (3) focusing on issues related to the learners in distance education. The findings of the study can be concentrated into three meta-themes: These are:

- The use of (online) technologies and implementation of educational technologies,
- Increasing efforts on learning processes as a focal point on learners,
- The pursuit of methodological perfection rather than exploring the field with a critical perspective and theoretically forged practices.

In this regard, the following suggestions and implications can be considered for future research directions. Rather than focusing on certain aspects of the field (e.g., learners and learning processes), adopting a systems view and approaching from the perspective of learning ecologies can contribute more to the development and advancement of the field because such an approach would help to better explore the neglected research areas and better understand the topics that are frequently studied. Another issue is the strong focus on the use of technology, which signals the imposition of technology-deterministic future research directions that can harm and hamper the advancement of the distance education field. Besides, rather than comparing and contrasting distance education practices (e.g., distance education vs. face-to-face education), researchers can focus on issues that improve current practices, move the field into the future, and upgrade it by benefiting from the distilled knowledge of the theory and best examples of the innovative practices. In the end, it is not a race between distance education and face-to-face education, in contrast, it is (and should be) a collective and collaborative process to provide learning opportunities to those who demand it and liberate minds, and perhaps, souls, through well-designed learning processes..

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