



Examination of Postgraduate Theses in the Field of Music Technologies in Turkey Between 2018-2022

Elif Gülfem KISTIR¹ , Berna ÖZKUT² 

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ABSTRACT

The development of technology affects human life and interests in many areas. This research was carried out to classify the postgraduate theses in the field of music technologies covering the years 2018-2022 in Turkey in order to reveal the effects of technological developments on music. Since the specified time period includes the Covid-19 pandemic period, it is among the sub-objectives of the research to determine the situation as a leading indicator of the effect on the thesis studies. The research is a descriptive study from qualitative research methods. The content and scope of the research consist of a total of 31 postgraduate theses that can be accessed on the thesis screening page of the Council of Higher Education between 2018-2022. In the thesis studies reached for the research, the concepts related to music technologies included in the keywords, subject headings, and abstracts of the theses constitute the limitations of the research. Although these concepts include the expressions "Computer, technology, sound recording, digital, recording technologies, sound technologies, music technologies, studio, software", the ones related to the field of music have been scanned. The data obtained were classified according to academic degrees, years, universities, institutes, subjects, the language in which they were written, and thesis titles and were analyzed by making frequency/percentage distributions. Based on the data obtained, it was concluded that the master's theses in the field of music technology are in the majority, the studies are based in Istanbul, and the Social Sciences Institutes are dominant based on the institute. It is thought that the research is

important in terms of creating a leading indicator for the studies to be done in the field of music technologies.

* Corresponding Author, brn.kut@gmail.com

¹Dokuz Eylül University, Türkiye

²Afyon Kocatepe University, Türkiye



Türkiye’de 2018-2022 Yılları Arasında Müzik Teknolojileri Alanında Yapılmış Lisansüstü Tezlerin İncelenmesi

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ÖZET

Teknoloji gelişimi birçok alanda insan hayatına ve ilgi alanlarına etki etmektedir. Bu araştırma, teknolojik gelişmelerin müziğe olan etkilerini ortaya koyabilmek adına, Türkiye’de 2018-2022 yıllarını kapsayan, müzik teknolojileri alanındaki lisansüstü tezlerin sınıflandırılması amacıyla yapılmıştır. Belirtilen zaman periyodu Covid-19 pandemi dönemini de içerdiği için yapılan tez çalışmaları üzerinde etkisinin, öncü gösterge niteliğinde durum tespitini yapmak, araştırmanın alt amaçları arasındadır. Araştırma nitel araştırma yöntemlerinden betimsel bir çalışmadır. Araştırmanın içerik ve kapsamını; 2018-2022 yılları arasında YÖK tez tarama sayfasında erişilebilen toplam 31 lisansüstü tezleri oluşturmaktadır. Araştırma için ulaşılan tez çalışmalarında, tezlerin anahtar kelimelerinde, konu başlıklarında ve özet kısımlarında yer verilen müzik teknolojilerine ilişkin kavramlar, araştırmanın sınırlılıklarını oluşturmaktadır. Bu kavramlar ‘Bilgisayar, teknoloji, ses kayıt, dijital, kayıt teknolojileri, ses teknolojileri, müzik teknolojileri, stüdyo, yazılım’ ifadelerini içermekle birlikte, müzik alanı ile ilişkili olanlar üzerinden tarama yapılmıştır. Elde edilen veriler akademik derecelere, yıllara, üniversitelere, enstitülere, konulara, yazıldığı dile ve tez başlıklarına göre sınıflandırılmış, frekans/yüzde dağılımları yapılarak incelenmiştir. Elde edilen verilerden yola çıkılarak müzik teknolojisi alanında yüksek lisans tezlerinin çoğunlukta olduğu, çalışmaların İstanbul merkezli olduğu ve enstitü bazında Sosyal Bilimler Enstitülerinin ağırlıklı olduğu sonuçlarına ulaşılmıştır. Araştırmanın, müzik teknolojileri alanında yapılacak çalışmalara öncü gösterge

oluşturma bakımından önemli olduğu düşünülmektedir.

1. Introduction

In today's information age, keeping up with the rapidly developing world and adapting to the innovations brought by science and technology is one of the basic elements of social development. Technology developed to meet the needs and desires of the society is one of the determinants of the competitive advantage of nations. Technology is defined as a phenomenon that covers all of the tools, equipment and methods used in this process, making life easier during practicality and general life in studies conducted in many fields (Delikara, 2019: 2). The art of music, in all its dimensions, has been in a strong relationship with technology in every period of human history. Technological developments have led to important developments by applying them to every field of music art.

The meeting of technology elements with the art of music is expressed with the concept of "music technologies" (Chadabe, 1997:1). Music technologies is an interdisciplinary and multidimensional concept that includes all stages of sound production, synthesis, recording and reaching the listener. In this context, we can say that the history of music technology includes innovations in tonal systems, the design of musical instruments, studies in the acoustic field, and discoveries about perspectives and ideas in the field of music-sound.

The interest in this field is constantly increasing with the development of the internet and social media and the effect of sharing and training on music and technologies. Say gathered the subject of computer and music under the headings of recording, composition and computer, notation writing, music education, digital dissemination of music from the internet, access to music materials, personal websites, music listening, and talked about the practical benefits of the relationship of music and computer technologies with the internet in reaching music to consumers. (Say, 2005).

"Measurement and analysis methods, which are a must for music technology education, especially when combined with today's computer technology, open the door to many different advanced research areas. Thus, an interdisciplinary systematic whole is formed for music technology" (Işıkhan, 2013).

The use of technology in the field of music has increased over time and gained various dimensions, and the studies carried out in this context are now gathered under the name of "Music Technology". The combination of music and technology elements has led many composers to work on this field. The term music technology is mostly used to cover electromechanical, electro-acoustic, mechanical and electronic technologies (Malm, 1992: 349).

It should not be forgotten that information pollution increases as well as ease of access to information. In order to prevent this information pollution, the importance of academic studies, especially thesis, which is done or will be done in universities, is increasing. In recent years, it is seen that academic studies on music technology have decreased compared to before 2018. It should not be forgotten that the effects of COVID-19 may also be among the reasons for this. In studies conducted in the field of music technology, a research article in which postgraduate theses were classified similarly between 1996 and 2018 was found through a literature review (Delikara, 2019). In this continuation study, it is aimed to reveal the current status of the classification, which is again in the nature of determining the situation and on the basis of the year. Looking at the last 5 years since 2018, it has been observed that there has been an increase in the variety of subjects of postgraduate theses compared to previous years.

Within the scope of the research, 31 postgraduate theses in the field of music technologies were taken as data.

2. Methodology

In the study, the survey model, which is a suitable method for determining the situation, was adopted. Survey models are research models that describe a past or present situation as it is (Karasar, 1999: 77). Description is the first step in all branches of science; Its purpose is to identify, classify and record the facts of the research and the relationships between these cases" (Yıldırım, 2000: 56). According to this model, data were collected for 2018 and beyond, using the thesis archive page of the Higher Education Council (YÖK) website (<http://www.yok.gov.tr>). Totally 31 postgraduate theses have been reached and shown in Appendix -1.

The problem sentence of the research is "What are the postgraduate theses in the field of Music Technologies in Turkey and how is their distribution by years?" Sub-research questions:

1. How is the distribution of postgraduate theses written in the field of music technologies according to academic degrees?
2. What is the distribution of post graduate theses written in the field of music technologies by years?
3. How is the distribution of postgraduate theses written in the field of music technologies according to languages?
4. How is the distribution of postgraduate theses written in the field of music technologies according to institutes?
5. How is the distribution of postgraduate theses written in the field of music technologies according to universities?

6. How is the distribution of postgraduate theses written in the field of music technologies according to their subjects?

3. Findings

3.1. Findings Related to the First Sub-Problem

The distribution of theses by academic degree is given in Table 1.

Table 1.

Distribution of thesis types according to academic degrees

Thesis type	f	%
Master	26	83,9
Doktorate	4	12,9
Proficiency in Arts	1	3,2
Total	31	100,0

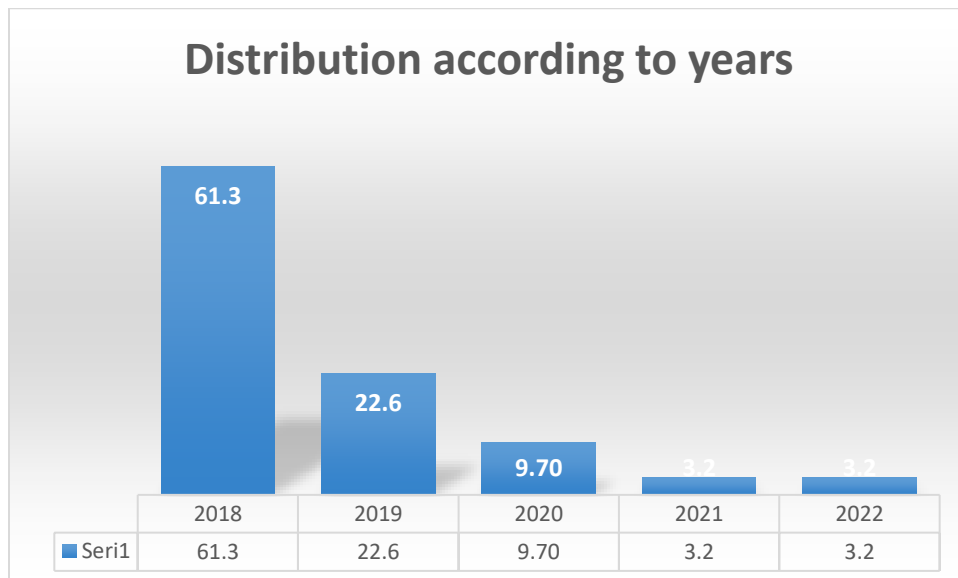
As can be seen in Table 2, when the distribution of postgraduate theses written in the field of music technologies is examined according to academic degrees, 83.9% are master's theses, 12.9% are doctoral theses, and 3.2% are proficiency in art.

3.2. Findings Regarding the Second Sub-Problem

The distribution of theses according to years is given Figure 1.

Figure 1.

Distribution of graduate theses by years



According to the data obtained from Figure 1, when the distribution of postgraduate theses written in the field of music technologies is examined by years, it is seen that the studies conducted have decreased in recent years. This decrease is thought to be due to reasons such as Covid-19.

3.3. Findings Regarding the Third Sub-Problem

The distribution of theses by language is given in Table 2.

Table 2.

Distribution by Languages Written

Language	Thesis Type							
	Master		Doctorate		Proficiency in Arts		Total	
	n	%	n	%	n	%	n	%
Turkish	23	88,5	4	100,0	1	100,0	28	90,3
English	3	11,5	0	0,0	0	0,0	3	9,7
Total	26	100,0	4	100,0	1	100,0	31	100,0

Table 2 shows the distribution of postgraduate theses written in the field of music technologies according to the languages in which they are written. According to the data, it was found out that 28 of the 31 theses were in Turkish and three were written in English. In addition, in the light of the findings, it was concluded that a foreign language other than English was not preferred.

3.4. Findings Related to the Fourth Sub-Problem

The distribution of theses by institutes is given in Table 3.

Table 3.

Distribution by Institutes

Institute	Master		Doctorate		Proficiency in Arts		Total	
	n	%	n	%	n	%	n	%
Social Sciences	11	42,3	1	25,0	1	100,0	13	41,9
Natural and Applied Sciences	4	15,4	0	0,0	0	0,0	4	12,9
Educational Sciences	10	38,5	3	75,0	0	0,0	13	41,9
Informatics	0	0,0	0	0,0	0	0,0	0	0,0
Fine Arts	0	0,0	0	0,0	0	0,0	0	0,0
Postgraduate Education	1	3,8	0	0,0	0	0,0	1	3,2
Total	26	100,0	4	100,0	1	100,0	31	100,0

According to the data obtained from Table 3, when the distribution of postgraduate theses written in the field of music technologies according to institutes is examined; It is possible to conclude that 41.9% of postgraduate

studies are carried out in social sciences and educational sciences institutes. This is followed by science institutes with a total of 12%. The distributions according to the institutes show that the studies on music technology have an interdisciplinary and multidimensional structure.

3.5. Findings Related to the Fifth Sub-Problem

The distribution of theses according to universities is given in Table 4.

Table 4.

Distribution of Theses by Universities

University	Master		Doctorate		Proficiency in Arts		Total	
	n	%	n	%	n	%	n	%
Akdeniz	1	3,8	0	0,0	0	0,0	1	3,2
Atatürk	1	3,8	0	0,0	0	0,0	1	3,2
Bahçeşehir	3	11,5	0	0,0	0	0,0	3	9,7
Bursa Uludağ	2	7,7	0	0,0	0	0,0	2	6,5
Gazi	0	0,0	2	50,0	0	0,0	2	6,5
Haliç	3	11,5	0	0,0	0	0,0	3	9,7
İnönü	2	7,7	1	25,0	0	0,0	3	9,7
İstanbul Bilgi	1	3,8	0	0,0	0	0,0	1	3,2
İstanbul Teknik	2	7,7	0	0,0	0	0,0	2	6,5
Kırıkkale	1	3,8	0	0,0	0	0,0	1	3,2
Kocaeli	1	3,8	0	0,0	0	0,0	1	3,2
Maltepe	1	3,8	0	0,0	0	0,0	1	3,2
Marmara	0	0,0	1	25,0	0	0,0	1	3,2
Mimar Sinan	1	3,8	0	0,0	0	0,0	1	3,2
Necmettin Erbakan	1	3,8	0	0,0	0	0,0	1	3,2
Ondokuz Mayıs	2	7,7	0	0,0	0	0,0	2	6,5
Sivas Cumhuriyet	2	7,7	0	0,0	1	100,0	3	9,7
TOBB	0	0,0	0	0,0	0	0,0	0	0,0
Trakya	1	3,8	0	0,0	0	0,0	1	3,2
Van Yüzüncü Yıl	1	3,8	0	0,0	0	0,0	1	3,2
Total	26	100,0	4	100,0	1	100,0	31	100,0

According to the data obtained from Table 4, in the distribution of postgraduate theses written in the field of music technologies according to universities, Bahçeşehir University 3 master's theses 9.7%, Haliç University 3 master's theses, İnönü University 2 M.Sc. and 1 PhD thesis and Sivas Cumhuriyet University. It shares the first 4 places with 2 M.Sc. and 1 Proficiency in Art thesis.

3.6. Findings Regarding the Sixth Sub-Problem

The distribution of theses according to subject is given in Table 5.

Table 5.*Table of distribution of thesis types by subject*

Subject	Master		Doctorate		Proficiency in Arts		Total	
	n	%	n	%	n	%	n	%
Acoustic	2	7,7	0	0,0	0	0,0	2	6,5
Digital Music	3	11,5	0	0,0	0	0,0	3	9,7
Music Education and Technology	12	46,2	3	75,0	0	0,0	15	48,4
Music Industry	5	19,2	0	0,0	0	0,0	5	16,1
Music Software	2	7,7	0	0,0	0	0,0	2	6,5
Sound Recording and Music Production	2	7,7	1	25,0	0	0,0	3	9,7
Turkish Music Analysis	0	0,0	0	0,0	1	100,0	1	3,2
Total	26	100,0	4	100,0	1	100,0	31	100,0

As seen in Table 5, most of the postgraduate thesis have been conducted about music education and technology (46,2%). After that, 19,2 of the examined theses are about music industry. Acoustic, music software, sound recordings and music production and Turkish music analysis have been also investigated in the theses.

4. Discussion and Conclusion

In this research, postgraduate theses written in the field of music technology in Turkey were evaluated within the framework of academic degree, year, language, institute and university criteria. In this context, master's, doctoral and artistic proficiency studies conducted between 2018-2022 were evaluated.

According to the data obtained; The most (83.9%) master's thesis was written in the field of music technology and 12.9% of them were doctoral theses and 3.2% of them were proficiency in art. For the second sub-problem, when the distribution of graduate theses made between 2018 and 2022 in the field of music technology is examined, it is seen that there is a decrease after 2018. The number of theses made in the last 5 years is 31, and it is seen that 61.3% of all theses that are the subject of the research were written in 2018. In the study conducted by Delikara (2019), when the distribution of graduate theses made between 1996-2018 was examined, it was determined that there was a significant increase in thesis studies on music technology in the last five-year period covering the years 2014-2018. In fact, it was stated that the data in this time period constituted 55.96% of all data. In our research from 2018 to the present, a significant decrease in this number is remarkable, and it is thought that there may be an effect of COVID-19.

When the distribution of the theses according to the languages in which they were written was examined, it was concluded that 90.3% were written in Turkish. Only English was preferred as a foreign language. The vast

majority of resources on music technology in the world are in English. It can be said as a positive result that the theses on the field in our country are in the mother tongue. In this context, it is not surprising that a similar result was found in the study conducted by Delikara (2019).

When the distribution rates of the postgraduate theses written in the field of music technologies are examined according to the institutes, it is observed that the theses are produced in the institutes of social sciences (41.9%), sciences (12.9%) and educational sciences (41.9%), respectively. In the study conducted by Delikara (2019), when the distribution rates of graduate theses written in the field of music technologies were examined according to institutes, it was observed that theses were produced in social sciences (46%), science (22%) and educational sciences (21%) institutes, respectively. In our research covering the year 2018-2022, the increase in theses made in the institutes of science and educational sciences is remarkable.

In the light of the data obtained, it has been concluded that the theses related to the field are predominantly made in universities where music technologies department and departments are located. In the distribution of written postgraduate theses according to universities, Bahçeşehir University shares the top 4 places with 3 master's theses, Haliç University 3 master's theses, İnönü University 2 M.Sc. and 1 PhD thesis, and Sivas Cumhuriyet University with 2 M.Sc. and 1 Proficiency in Art thesis. When the study of Delikara, which covers the years 1996-2018, was examined, it was observed that the state and foundation universities in Istanbul have taken the lead since then.

While the subjects of "Music education and technology" are mostly covered in the field of M.Sc., publications on the subject of "music industry" are mostly seen. From past to present, rapid developments in the field of technology have diversified the use of technology in music in interdisciplinary matters. When we look at Delikara's work again, it was concluded that parallel to the technological developments, studies on the field have turned towards examining the software features rather than examining the hardware features of music technologies.

Ethical Statement and Conflict of Interest

Scientific ethical principles and rules were taken as basis in all stages of this research, including preparation, data collection and analysis, and reporting. The ethical standards and conditions of the Committee on Publication Ethics (COPE) have been accepted and acted accordingly. The study did not receive funding from an institution or organization. There is no conflict of interest in the article.

Author Contributions

The authors took part in all phases of the study and contributed equally.

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Note: Studies examined within the scope of this research are indicated with * in the references.

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Appendix -1

Year	Thesis	Thesis Type
2018	Acoustic arrangement with do it your self (diy) materials in home studios	Master
2018	The comparison of the acoustic modelling which was gotten by convolution method and real space reflection	Master
2018	Analysis and comparison of sound output quality difference between digital audio workstation software	Master
2018	Research on impacts of the computer- assisted piano learning on the student performance (home concert xtreme example)	Doctorate
2018	Online marketing of Turkish art music and its status within Turkish music business	Master
2018	Reflections of copyrights issues in Turkish musical environment on digital music	Master
2018	Multi vocalisation analysis of the songs in secondary school music text books with digital softwares	Master
2018	A virtual audio library design for turkish music rhythm patterns	Doctorate
2018	Dimension concept and size effecting factors in the mix stage	Master
2018	The effects of music and tempo on consumer's time perception in online shopping	Master
2018	A subjective listening test on the preference of two different stereo microphone arrays on headphones and speakers listening setups	Master
2018	Sound morphing using auditory p300 based attentional brain-computer musical interface	Master
2018	The use of music in video games: The legend of zelda	Master
2018	Applicability of web based distance learning in instrumental (guitar) training	Doctorate
2018	Transformation of musician identity in Turkey the context of internet and music	Master
2018	Creating digital sound effects in software	Master
2018	The effect of music technology applications on succes in musical hearing reading and writing teaching	Master
2018	The effect of music technology applications on succes in musical hearing reading and writing teaching	Master
2018	Test of the effect of technological tool and computer assisted classical guitar training method in amateur music education institutions	Master
2019	The effect of using technology-assisted teaching materials in primary education 7th-grade music teaching on academic achievements of the students	Master
2019	A curriculum proposal for the usability of the music technologies in the beginner level group piano education: midi piano laboratory implemantations	Master
2019	A research on the usability of accessible and assistive music technologies (example of people with disability)	Doctorate
2019	Teaching sound recording and music technologies in higher education institutions	Master
2019	Spectral variables in technical ear training: an innovative application proposal to improve the professional hearing skills of students studying in music technology education	Master
2019	The teacher's views on the use of technology in 5th grade music lessons in state and private schools	Master
2019	Computer aided comparison of classical turkish music works componented with simple makams in arel theory and theoretical information about these makams	Art
2020	Pre-school teachers and teacher candidates' attitudes towards using technology in music education	Master
2020	The effects of virtual auditory place developed as part of musical technology to intanotion awareness of string instrument learners	Master
2020	Music in digital technology era: postmodern transformation analysis	Master
2021	A research on the use of music technologies in music education departments; The case of Van province	Master
2022	The music usage status of the teachers of the lessons taken about music technology in the covid-19 period	Master