



Decision Support Systems: A Content Analysis of Graduate Theses in Turkey

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ABSTRACT

This study aims to conduct a descriptive analysis and evaluation of graduate theses regarding decision support systems carried out between 1989 and 2020 in Turkey. The qualitative research methodology was applied, the theses were analyzed through the descriptive content analysis technique. Forty-eight graduate studies accessible from the national thesis center database of YÖK were included in the analysis. The theses were coded according to the date of publication, university, institute, department, degree level, the academic title of the thesis supervisor, thesis language, research methodology, research sub-areas. Graduate studies on DSS have increased in the last 15 years, and 42 studies have been conducted in the last 15 years. Selçuk University ranks first with the most studies on DSS. Half of the studies were carried out in the Institute of Science, and most of the studies that were produced in the universities were master's theses. Most supervisors were "Prof. Dr." titled faculty members. Most of the theses were written in Turkish, and primarily experimental studies were conducted. The business administration department produced most of the theses on DSS. Business and environment studies were the primary disciplines that produced theses. These were carried out in 7 institutes and 26 different departments. The findings of this study will guide other researchers who are willing to work in the decision support systems field.

Keywords : Decision Support Systems, Graduate Theses, Descriptive Content Analysis, Technology, Higher Education

Karar Destek Sistemleri: Türkiye'deki Lisansüstü Tezlerin Betimsel İçerik Analizi

ÖZ

Bu çalışma, Türkiye'de 1989-2020 yılları arasında yürütülen karar destek sistemlerine ilişkin lisansüstü tezlerinin betimsel bir analizini ve değerlendirmesini yapmayı amaçlamaktadır. Araştırmada, nitel araştırma yöntemleri kullanılmış ve tezler betimsel içerik analizi tekniği ile analiz edilmiştir. YÖK ulusal tez merkezi veri tabanında kayıtlı ve erişilme izni olan 48 lisansüstü çalışma incelenmiştir. Tezler



yayın tarihi, üniversite, enstitü, bölüm, yüksek lisans//doktora düzeyi, danışman unvanı, dili, araştırma yöntemi, araştırma alt alanına göre kodlanmıştır. Tezler incelendiğinde son 15 yılda bu konu ile ilgili 42 çalışma yapılarak yüksek oranda artış göstermiştir. Karar Destek Sistemleriyle ilgili birçok üniversitede çalışmalar yapılmış olup, Selçuk Üniversitesi lisansüstü çalışmasıyla konuya en fazla katkı sağlayan üniversitedir. Çalışmaların yarısı Fen Bilimleri Enstitüsünde yapılmış ve üniversitelerde üretilen çalışmaların çoğu yüksek lisans tezlerinden oluşmuştur. Tez yöneticilerinin çoğu "Prof. Dr." ünvanlı öğretim üyeleridir. Çalışmaların çoğu Türkçe yazılmış ve en çok deneysel yöntem kullanılmıştır. Tezlerin çoğu işletme bölümündeki çalışmalardan üretilmiştir. Tezler başlıca işletme ve çevre disiplinlerinde yapılmıştır. Tezler 7 enstitü ve 26 farklı bölümde yürütülmüştür. Bu çalışmanın bulguları, karar destek sistemleri alanında çalışmak isteyen diğer araştırmacılara yol gösterecektir.

Anahtar Kelimeler : Karar Destek Sistemleri, Lisansüstü Tezler, Betimsel İçerik Analizi, Teknoloji, Yükseköğretim

1. INTRODUCTION

Information systems have become more significant to support managerial decisions in recent years. Companies' decisions involve the management and use of information systems and data interpretation from the business and its environment. The essential characteristic of a manager is her/his ability to make fast and correct decisions. Among the managers' duties, the most crucial task is to make the best decision in the shortest time possible. A good decision-making process can be achieved by producing accurate, UpToDate, and timely information. Today, managers have to comprehend their organisation's capabilities and uses of information significantly to comprehend budgeting financial resources (Pearlson, Saunders and Galletta, 2019).

Decisions are classified as unstructured, semi-structured, and structured. Unstructured decisions "are those in which the decision-maker must provide judgment, evaluation, and insight to solve the problem" (Laudon & Laudon, 2020). Each of these decisions is novel, essential, and non-routine, and there is no well-understood or agreed-on procedure for making them. On the other hand, structured decisions "are repetitive and routine, and they comprise a definite procedure for handling them so that they do not have to be treated each time as if they were new" (Laudon & Laudon, 2020). Many decisions have elements of both types of decisions and are classified as semi-structured decisions. In semi-structured decisions, only a part of the problem has a definite answer provided by an accepted procedure (Laudon & Laudon, 2020).

A decision support system (DSS) is “an information system at the organisation's management level that combines data and sophisticated analytical models or data analysis tools to support semi-structured and unstructured decision making” (Laudon & Laudon, 2018). Gorry and Scott Morton, in 1971 first mentioned DSS, and it has been widely used in many applications (Gorry and Morton, 1971). DSS is intended to support decision-makers to assist and improve their decisions regarding the process and the outcome of their business activities (Laudon & Laudon, 2020, Biswas, 2020). DSSs serve the middle and higher management, operations, and planning levels of an organisation. DSS do not replace the decision-maker or the manager; they are the systems that only assist and support the decision-maker in their decision (Rainer, Prince, and Watson, 2017).

Information as a vital source of the development of competitive advantage is crucial for businesses to be managed. Thus, businesses have to accept this change and continuously renew themselves to compete with their rivals in rapidly developing competitive conditions. Otherwise, they are doomed to have difficulty competing with their rivals and disappear (Rainer, Prince and Watson, 2017). Increasing the opportunities of any business to gain the aforesaid competitive advantage is possible using DSS in critical decision-making conditions.

The use of DSS in supporting business process examples based on the literature are; higher education sector (Zhu, 2018), health (Belciug & Gorunescu, 2020; Lakshmanaprabu, Mohanty, Krishnamoorthy, Uthayakumar, & Shankar, 2019), tourism (Isoda, Hidaka, Matsuda, Suwa, & Yasumoto, 2020), transportation (Sun, Dubey, White, & Gokhale, 2019), environmental (Kharbat, & Sultan, 2017), oil industry (Abu-Abed & Khabarov, 2019), agricultures (Hafezalkotob, Hami-Dindar & Rabie, 2018), fisheries and marine affairs (Hozairi & Krisnafi, 2017). This tendency suggests that multipurpose DSS applications support the decision-making process (Teniwut & Hasyim, 2020).

Decision Support Systems as a fundamental topic needs to be handled with various branches of science. This study aimed to investigate academic work at the graduate level that has been done on the decision support system over the last 31 years in Turkey. A total of 48 Master's and Doctoral theses were analysed, and the findings are resented in this paper.

This study is significant as it examines the postgraduate studies conducted in the field of DSSs in Turkey. It provides descriptive information about the nature of the studies and offers recommendations for future studies on decision support systems.

2. METHOD

2.1. Research Questions and the Design of the Study

This study addresses the following research question and its sub-questions.

How many graduate theses have been written on the Decision Support Systems over 31 years in Turkey?

1. How many theses have been written on DSS in various years in Turkey?
2. How many theses have been written on DSS in various universities in Turkey?
3. How many theses have been written on DSS in various institutes in Turkey?
4. How many theses have been written on DSS in various departments in Turkey?
5. How many masters' and doctorate degrees are there on DSS?
6. What are the academic titles of the supervisors who have supervised theses on DSS?
7. How many theses on DSS have been written in Turkish and English?
8. What are the research methodologies that researchers working on DSS followed?
9. How many sub-areas have been involved in research on DSS?

This study employed descriptive content analysis of the qualitative research approach. Content analysis is a process of summarising and reporting written data. The researcher reads, organises, and digitises the data per the codes, categories, and themes previously created (Dawson, 2019). Thus, researchers gained the opportunity to interpret data from the existing sources using the keywords in the searched studies. They were able to show the frequency of the importance of the topic under investigation.

2.2. Population

Purposive sampling was used as a sampling strategy. The population consists of theses and dissertations accessible from the YÖK's "National Thesis Centre." The first dissertation on decision support systems was published in 1989 in the National Thesis Centre. Therefore, the study's time frame was determined as from 1989 to 2020 to include all published theses accessible from the centre on DSS. Theses within the scope of the research were downloaded between 01.12.2020 and 30.12.2020 by the researchers. 48 Theses, 32 of which were masters' theses, 15 were doctoral dissertations, and only one was a PhD thesis on medical speciality.

2.3. Data Collection Procedure and Analysis

During the data collection procedure, the keywords for the DSS concept were entered both in Turkish and English in the search engine as "karar destek sistemleri, decision support systems". 72 Theses were located in the National Thesis Centre, 48 of which were open to access (Appendix 1). All 48 theses with access permission within the field of decision support systems registered in the database of YÖK were included in the study. Out of 48 theses, 32

were masters' theses, 15 were doctoral dissertations, and only one was a PhD thesis on medical speciality. 24 theses out of the initially available 72 were eliminated from the study because their full-texts were not accessible due to the access limits placed by the authors. The figure 1 shows the data collection procedure visually.

The theses were uploaded to the computer in PDF document format. The unit of analysis was identified as descriptive information regarding the nature of the graduate theses on DSS. Each thesis was assigned with numbers starting from 1 to 48. The abstracts and full texts of 48 theses were read and analysed thoroughly. Nine codes for the analysis were identified. The codes are as follows: the year, the university, the institute, the department, the degree level, supervisors' academic title, language, the research methodology, and the research sub-area. Then, the frequency of each code was counted. The information on the frequency of the codes enabled the researcher to compare them. The comparison showed the focus of academic work regarding DSS over 31 years.

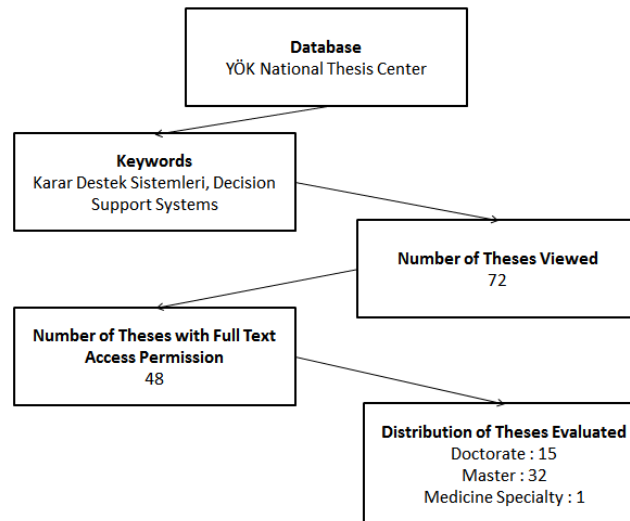


Figure 1: Data Collection Procedure

3. FINDINGS

In this section, the descriptive findings of the graduate theses on DSS written between 1989 and 2020 are presented. The graphs presented below involve descriptive information about the year, the university, the institute, the department, the degree level, supervisors' academic title, the theses' language, the research method, and the research sub-areas.

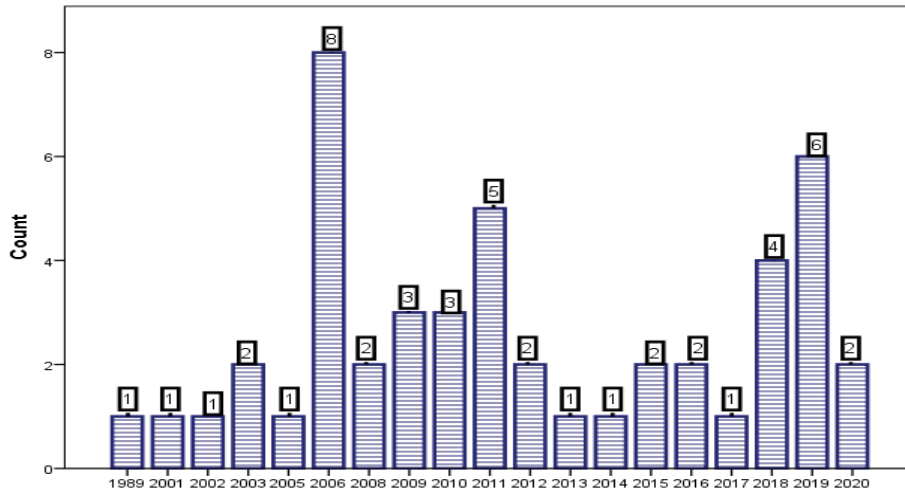


Figure 2: Graduate Theses According to Years

Figure 2 shows that there is a significant increase in the number of theses published since 1989. The first and only study in the field was carried out in 1989, and the second study was carried out 15 years later in 2001. The years when DSS was the most popular research topic among the graduate students were 2006, 2011 and 2019. Eight studies were conducted in 2006. They form 16.67% of the total studies over the 31 years. There were six (12.50%) studies in 2019 and five (10.42%) in 2011.

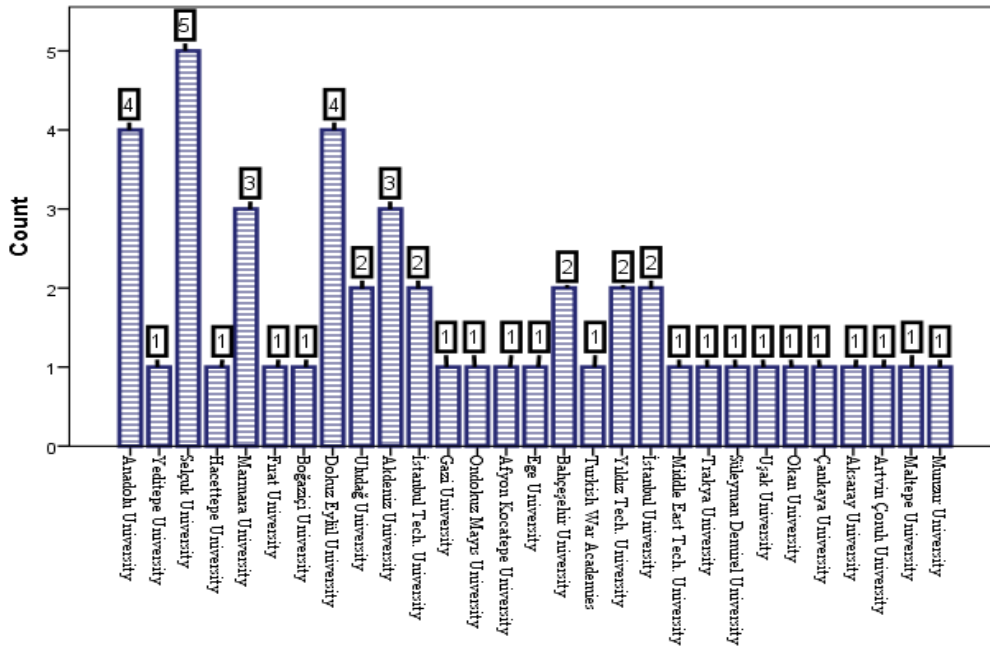


Figure 3: Graduate Theses According to Universities

Figure 3 represents the universities where graduate students wrote their theses on DSS. According to the findings, Selçuk University is in the leader position with the most studies on DSS with 5 (10.42%) theses. Anadolu and Dokuz Eylül Universities are the second with 4 (8.33%) theses in each. Hacettepe and Akdeniz Universities follow with three theses. In other universities, only one or two theses were produced.

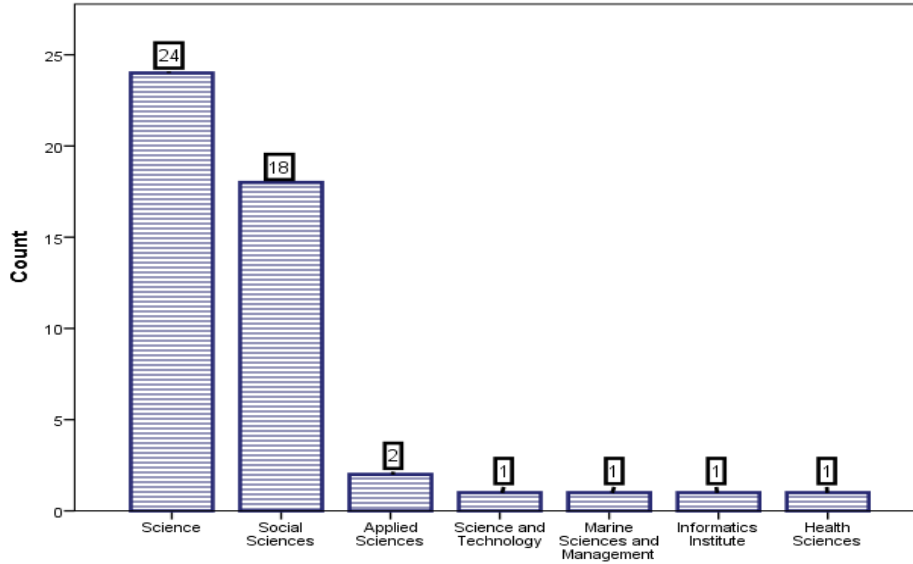


Figure 4: Graduate Theses According to Institutes

According to Figure 4, the Institute of Science has been determined as the institute with the highest number of studies. Half of the theses on DDS were conducted under this institute. The next was the social sciences institute with 18 (37.50%) theses. A total number of 48 studies were conducted under seven institutes, including Institutes of science, social sciences, applied sciences, science and technology, marine sciences and management, informatics, and the health sciences. As the numbers of theses in the institutes of science and social sciences are high, a question arises concerning the lack of theses in the other institutes.

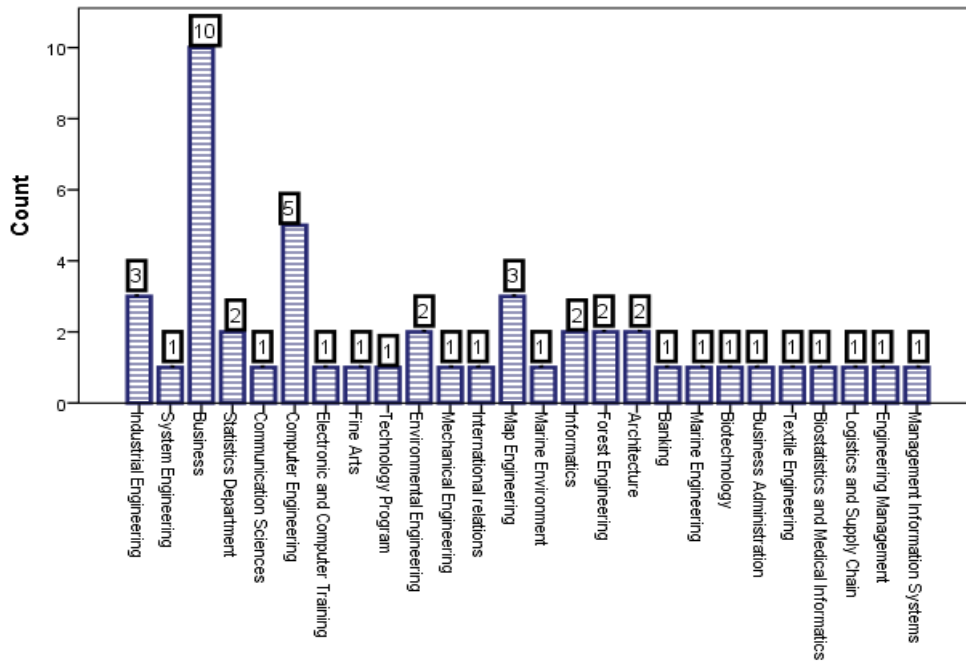


Figure 5: Graduate Theses Witten According to Departments

A total of 48 thesis studies were conducted in 26 various departments, as shown in Figure 5. The business department is one of the departments that predominantly produce theses in DSS. This is not an extraordinary result as DSS aims to help managers and businesses in decision-making. Business departments had ten theses (20.83%) in DSS. The computer engineering departments carried out 5 (10.42%) studies only.

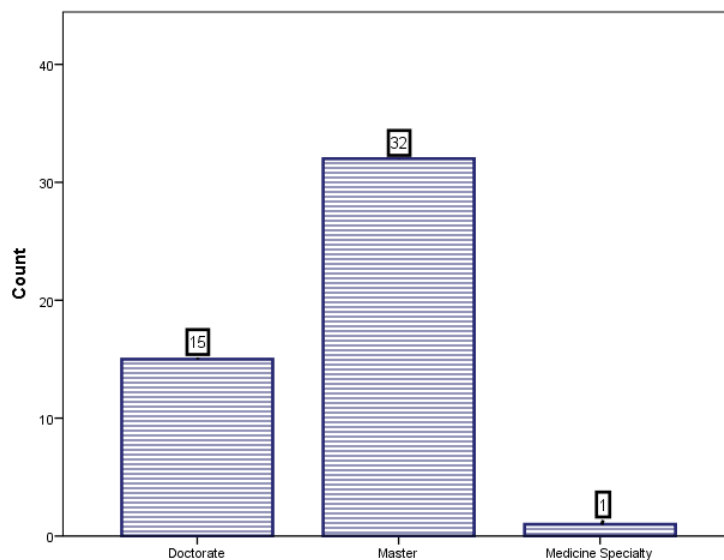


Figure 6: Graduate Theses According to Degree Levels

As shown in Figure 6, regarding the degree levels of theses produced in universities on DSS, 32 (66.67%) were the master's theses, 15 of them were doctoral dissertations (31.25%), and only a single (2.08%) PhD dissertation in medical specialty was carried out according to YÖK's "National Thesis Centre".

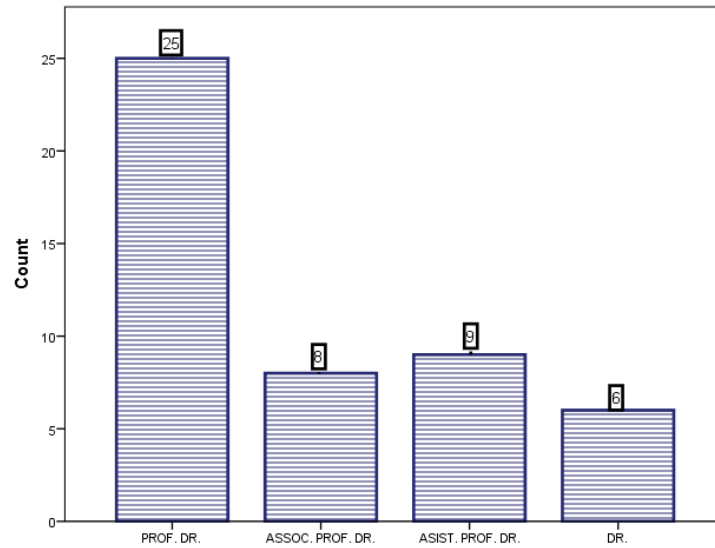


Figure 7: Graduate Theses According to Advisors' Academic Titles

As shown in figure 7, 25 (52.08%) of the theses were supervised by "Prof. Dr." titled faculty members. In other words, more than half of these thesis studies are supervised by "Prof. Dr." titled faculty members. Faculty members with the titles of "Assoc. Prof. Dr." supervised 9 (18.75%) theses. The rest of the 8 (16.67%) theses were supervised by "Assist. Prof. Dr.", and 6 (12.50%) were supervised by "Dr." titled faculty members.

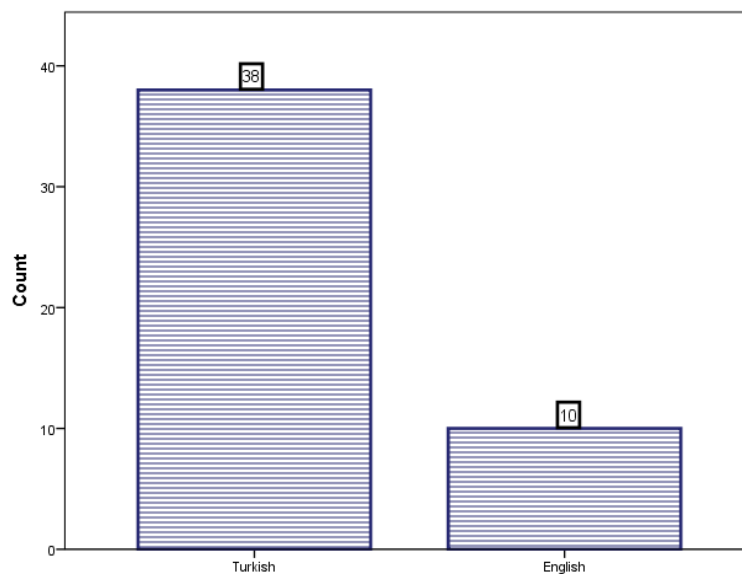


Figure 8: Graduate Theses According to Languages

As seen from figure 8, 38 (79.17%) of the theses were written in Turkish, and only 10 (20.83%) were written in English.

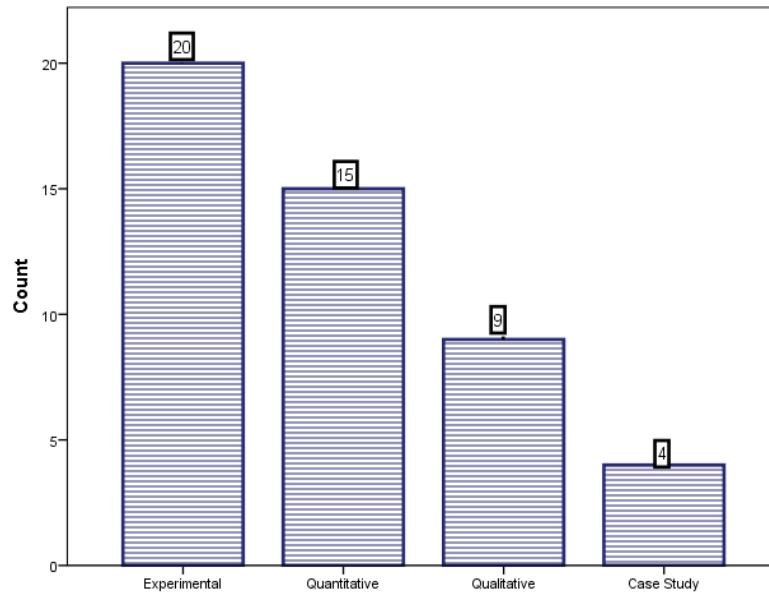


Figure 9: Graduate Theses According to Research Methodology

As shown in Figure 9, experimental studies constitute the maximum with 20 (41.67%) studies, 15 (31.25%) studies were carried out quantitatively, and 9 (18.75%) were conducted qualitatively. Only 4 (8.33%) of the theses followed a case study design.

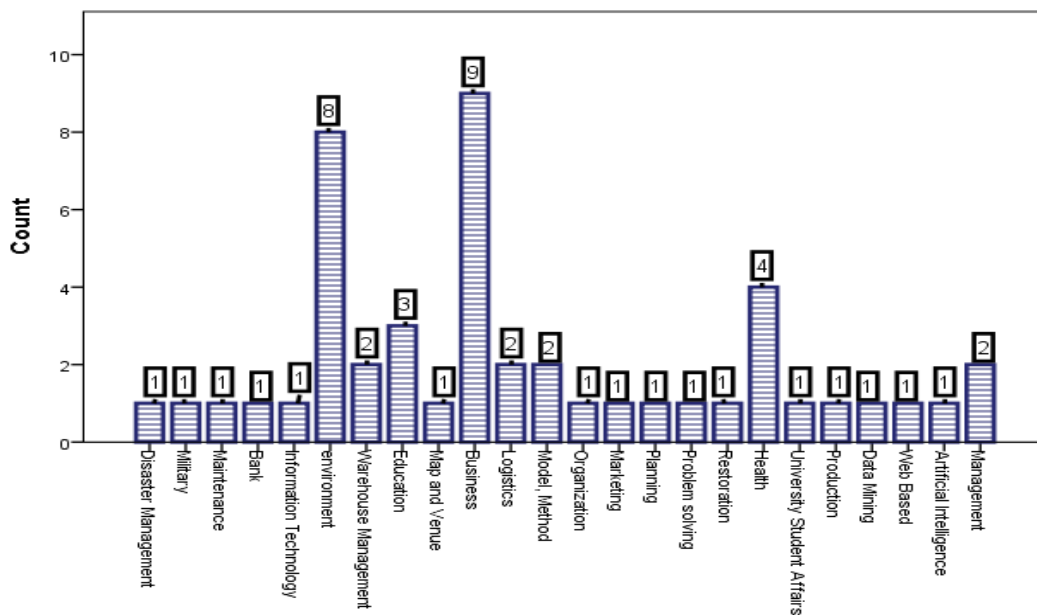


Figure 10: Graduate Theses According to Research Sub-areas

As shown in Figure 10, most studies on DSS were related to business. 9 Studies (18.75%) were conducted in business. 8 (16.67%) studies were carried out in environmental studies. A total of 31 studies were conducted in the sub-areas of banking, health, military, logistics, information technology, maintenance, disaster management, warehouse management, map space, model and method, organization, marketing, planning, problem-solving, restoration, student affairs, production, data mining, web base, artificial intelligence, and management.

4. DISCUSSION AND CONCLUSION

According to the results, graduate studies on DSS have increased in the last 15 years; 42 studies have been conducted in total. There has been a significant increase in the number of theses published since 2001. The first and only study in the field was carried out in 1989, and the subsequent study was conducted 15 years later, in 2001. Most of the studies were conducted in 2006, followed by 2019 and 2011. Selçuk University ranks first with the most studies on DSS. Half of the studies were carried out in the Institute of Science. Most of the work that was produced in the universities was master's theses. Most supervisors were "Prof. Dr." titled faculty members. Most of the theses were written in Turkish, and most experimental studies were conducted. The business administration department produced most of the theses on DSS. Business and environment studies were the primary disciplines that produced theses. Initially, more studies were expected to be found in other areas such as marketing and student affairs in higher education. In such areas, DSS could ensure a competitive advantage.

Inevitably DSS is a tool for businesses to improve as management gets the opportunity to develop their organizations by making appropriate decisions with the support of the system. Discovering that there were only nine studies over 31 years in the business field was surprising.

According to the results of this study, the number of master's or doctorate thesis are very few in healthcare/medicine subjects in Turkey. In the last few years, substantial progress has been made in artificial intelligence field and the machine learning context. Features provided in practical applications range from supporting the user while making decisions, e.g., in a recommender system, to making decisions fully autonomously. Applying machine language algorithms to new large datasets can expose novel tendencies and relationships that may have practical effects for clinical practice in medicine/healthcare decision support systems (Brusko, Kolcun, & Wang, 2018). Researchers have studied the application of machine language methods in healthcare decision support systems and have demonstrated the significant impact of machine language in making enhancements to healthcare safety, quality, and DSSs (Buchlak, Esmaili, Leveque, Farrokhi, Bennett, Piccardi, & Sethi, 2019; Miotto, Wang, Jiang, & Dudley, 2018; Liang, Zhang, Huang, & Hu, 2014). Therefore, the universities should focus on doing more research in healthcare subjects, either master or doctorate level.

Arnott & Pervan (2016) indicated in their research that; using information technology-based systems to support managers and senior personnel's decision-making activities has been a significant feature of information system (IS) research and practice since the IS discipline appeared in the 1960s and 1970s. In the future, this trend will continue as especially business intelligence is presently rated as the most vital information technology subject for CIOs worldwide, and DSS research is currently over 10% of the IS discipline (Arnott & Pervan, 2016). The decision support system is an important research topic for many various disciplines and departments. Many departments in various disciplines worked on this subject. They revealed the importance of decision-making and decision support systems, regardless of discipline, program, and faculty. Remarkably, most of the studies conducted were experimental.

Today, the increase in complexity of machine learning techniques based on deep learning provides enlightenments for scientists to comprehend the consequences of these methods is appealing essential in decision support systems.

4.1. Recommendations

Future research could concentrate on the studies published in internationally indexed journals. Comparisons concerning the methodology, field of studies, and studies' contributions might be analysed. Postgraduate students, namely masters and doctorate, could be encouraged to review DSS studies in different countries and write comparative studies. Such studies could contribute to both practitioners and decision-makers. Moreover, the research scope can be expanded by examining the articles on the subject at the national and international levels. More studies can be written jointly by various disciplines. As mentioned earlier, the new developments in the world lead all companies and countries to concentrate more on the decision making as technology is the main driving force of the developments and competitive advantage. Therefore, studying DSS in the fields such as transportation, higher education, and service industries is necessary.

4.2. Limitations

This study is limited to postgraduate studies, which could be accessed from the Thesis Documentation Centre System of Higher Education Council, Turkey. Thus, the results of this study are generalizable within the context of Turkey.

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Appendix 1. Theses Table

YYear	Title of Thesis	Author	University	Institute	Master/ Doctorate/ Medicine S.
1989	Decision Support Systems and an Application in Student Affairs	M. Emin MUTLU	Anadolu University	Science	Master
2001	Group Decision Support Systems for Supply Chain Management	Şener ÇETİNBAŞ	Yeditepe University	Science	Master
2003	Risk Analysis and Decision Support Systems in Evaluation of Investment Projects	Muhammet BEZİRCİ	Selçuk University	Social Sciences	Doctorate
2002	Decision Support Systems: The Effect of Self Effort to Academic Success in Learning Computer Softwares	Semra ERPOLAT	Hacettepe University	Science	Medicine S.
2003	A Research on Organizational Decision Support Systems and the Application of Information Systems in Organisational Decisions	Erhan AKYAZI	Marmara University	Social Sciences	Doctorate
2006	Using Olap Tools on Web Based Decision Support Systems	Aysan ALPAT	Anadolu University	Science	Master
2006	Decision Support Systems Based on Pattern Recognition for Evaluating of Histopathologic Images	Suat TORAMAN	Fırat University	Science	Master
2005	Decision Support Systems in Main Production Planning in a Facility That is Used and Produced Without Stock Application	Özlem HASGÜL	Anadolu University	Social Sciences	Master

2006	A Framework for Integrating Knowledge Management and Decision Support Systems by Using Knowledge Discovery Techniques: A Case Study Forecasting Financial Time Series	Zarife Gonca GÜLSER	Boğaziçi University	Social Sciences	Master
2006	Implementation of Decision Support Systems for Landfill Sites	Hasan SARPTAŞ	Dokuz Eylül University	Applied Sciences	Doctorate
2006	Importance of Marketing Decision Support Systems in Marketing Information System and Developing Example Marketing Information Systems in Migros	Banu NAHARCI	Uludağ University	Social Sciences	Master
2006	In Employee Selection and Evaluation of Performance Decision Support Systems: an Application at Antalya Textile Management	Serdar URHAN	Akdeniz University	Social Sciences	Master
2006	The Role of Decision Support Systems in the Decision-Making Process (An Investigation of A Business Operating in the Automotive Sector)	Levent ÇELİK	Marmara University	Social Sciences	Master
2006	Web-Based Group Decision Support Systems in Defence Technologies	Yavuz GÖSTERİŞLİ	İstanbul Technical University	Science and Technology	Master
2008	Decision Support Systems in Integrated Logistic Management and an Application Software	Gökhan ŞENOL	Uludağ University	Social Sciences	Doctorate
2008	Control Systems Based on Decision Support Systems in Disaster Management	Barış KALAYCIOĞLU	Gazi University	Science	Master
2009	Resolving of The Lot-Sizing Problems in the Material Requirement Planning Process By Decision Support Systems	Alihan GÜZELDÜLGER	Selçuk University	Science	Master
2009	Decisions Based on Information Technology and Implication of Group Decision Support Systems	Didem PAŞAOĞLU HAMŞIOĞLU	Anadolu University	Social Sciences	Doctorate
2009	Usage of Decision Support Systems in Management of Perishable Inventory and Product Versus User Discordance Problems in Blood Centers	Ahmet Haluk ÇİFTÇİ	Dokuz Eylül University	Social Sciences	Doctorate
2011	Development of Strategies For Planning Water Basins Through Decision Support Systems, Implementation of These Strategies and Environmental Risk Evaluation	Eda ÖZBAYRAK	Ondokuz Mayıs University	Science	Doctorate
2010	Application of Decision Support System on Vehicle Management	Serhat DÜZAĞAÇ	Afyon Kocatepe University	Science	Master
2010	Design and Implementation of Hybrid Intelligent Decision Support Systems	Serkan BALLI	Ege University	Science	Doctorate
2011	Warehouse Modelling and Verification For Decision Support System: Transportation System	Mert SUN	Bahçeşehir University	Applied Sciences	Master
2011	Compensation of Decision Support Systems Usage and Turkey Between	Muhammed ÖZTOPRAK	Turkish General Staff	Social Sciences	Master

	2005-2010 and With the Help of Israel's Strategic Decision Module Review		War Academies Presidency		
2010	Real Estate Valuation by Using Multicriteria Decision Support System (Analytic Hierarchy Process) and Ratio Study	Ahmet YILMAZ	Yıldız Technical University	Science	Master
2011	Establishing and Application of Spatial Decision Support Systems For Land Consolidation Projects	Mevlüt UYAN	Selçuk University	Science	Doctorate
2011	Marine Biological Diversity Assessment For Marine Conservation Planning in Antalya-Kas Using Decision Support Systems	Volkan DEMİR	İstanbul University	Marine Sciences and Management	Doctorate
2012	Predicting the Disease of Alzheimer (Ad) With Snp Biomarkers and Clinical Data Based Decision Support System Using Data Mining Classification Approaches	Onur ERDOĞAN	Ortadoğu Technical University	Informatics Institute	Master
2012	Applying Decision Support Systems to A Case Study	Nazan DEMİRCİ	Trakya University	Science	Master
2013	Forest Fires Organization and Decision Support Systems	Emine Seda YILDIZLI	Süleyman Demirel University	Science	Master
2014	A Research About the Awareness of Decision Support Systems in Sme in Chosen Provinces of Aegean Region in Turkey	Hasbiye DİZMAN	Uşak University	Social Sciences	Master
2015	Using Decision Support Systems and Life Cycle Assessment Approach For Selecting Wastewater Treatment System	Mustafa YILDIRIM	Akdeniz University	Science	Doctorate
2015	A Decision Support Model Proposal for Use in Cultural Heritage Management	S. Armağan GÜLEÇ KORUMAZ	Selçuk University	Science	Doctorate
2016	Credit Evaluation in Banking and Decision Support Systems	Bucan TÜRKMEN	Okan University	Social Sciences	Doctorate
2016	Safety Based Decision Support Systems for Marine Structures	Emre Koray GENÇSOY	İstanbul Technical University	Science	Master
2017	A Software Library for Computerized Clinical Health Decision Support System Focusing on Acoustic Respiratory Data Acquisition and Analysis	Güneş HARMAN	İstanbul University	Science	Doctorate
2018	A Decision Support System for Crew Planning	Mehmet Tankut TÜRKSEVEN	Çankaya University	Social Sciences	Master
2018	Financial Decision Support Systems in Business	Hatice Dervişoğlu ÇELİK	Bahçeşehir University	Social Sciences	Master
2018	Development of Spatial Decision Support Systems with Machine Learning Techniques: Case of Aksaray Province	Süleyman Sefa BİLGİLİOĞLU	Aksaray University	Science	Doctorate

2018	Examination of Safranbolu Tannery Buildings Refunction Process Using with Decision Support Systems	Ömer ÖZEREN	Selçuk University	Science	Master
2019	Analysis of Supplier Selection in Clothing Plants by the Help of Multi-Criteria Decision Support Systems	Deniz KARATAŞ CEVİZCİ	Dokuz Eylül University	Science	Master
2019	Data Mining Applications in Decision Support Systems and an Application Example in Personnel Selection	Fatih DEM	Marmara University	Social Sciences	Master
2019	Hospital Laboratory Information Management Additional Decision Support Systems in the System Taking Samples Using and Improvement of Classification	Mustafa COŞKUN	Akdeniz University	Health Sciences	Master
2019	The Development of Decision Support Systems for Fire Risk and Danger Maps	Mehmet BOYATAN	Artvin Çoruh University	Science	Master
2019	Development of Optimal Decision Support System for the Maintenance Processes of Aircraft Engines	Lilya UMEROVA	Yıldız Technical University	Science	Master
2019	Use of Decision Support Systems in Warehouse Management and an Application on Determining Important Criteria for Product Placement	Mustafa ARSLAN	Maltepe University	Social Sciences	Master
2020	A Computer Assisted Decision Support System for Education Planning	Yiğit ALIŞAN	Munzur University	Science	Master
2020	The Use of Artificial Intelligence in Organizational Decision Support Systems: Design and Implementation	Mert DÖNERÇARK	Dokuz Eylül University	Social Sciences	Master