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Major Tendencies in Leadership between 1965-2020: A Scientometrics Analysis*

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1. INTRODUCTION

The term of leadership has been addressed in different fields for centuries. These fields comment on leadership according to their perspectives and there have been many different aspects on it. However, there has been a certain point that leadership is a different term from administration although they have similar features (Alabduljader, 2012; Baumeister & Bushman, 2014; Bogardus, 1934; Drucker, 2007; Surji, 2015; Yıldız, 2012). For this reason, especially management fields have probed leadership and suggested many different approaches about leadership based on various research results (Fleenor, 2006; Marion, 2002; Şişman, 2018; Yukl, 2010). These results have shown that leadership is one of the most important fields for both human and organizational lives.

Since that day, leadership has become the most popular term in administrative fields and countless research has been made with different research methods for it. Some of these researches have focused on some part of leadership with quantitative or qualitative methods, while some of them have handled leadership with a general review. One of the most preferred methods for a general review to a term is scientometric one of the data mining. Data mining tries to form new meaningful patterns from a large data source, and scientometric tries to give a big picture for this resolution (Abramo, 2018; Chen, Han & Yu, 1996; Larose & Larose, 2014). For this reason, this study tries to present a general and different aspect for leadership by using scientometric analysis. Therefore, this study displays a big picture and major tendencies of 60 year-leadership research.

Literature

Although being addressed for the early stages of history, leadership studies have increased in the 20th century (Güçlü 2016; Horner, 1997). With the effects of these studies, leadership approaches were divided into different categories such as trait theory, behavioral, contingency, and contemporary theories. Until 1945, the studies focused on defining the similar qualities of leaders like intelligence, health, height, success, position, capacity, participation, or weight (Cemaloğlu, 2013; Çelik, 2005;

Hoy & Miskel, 2010; Marion, 2002). In this context, along with the trait theory, the physical, social, and personality characteristics of the leader were tried to be determined. However, the following studies revealed that this theory was not always valid. Because the studies conducted by Mann, Myers, Stogdill and other researchers showed that the trait in one leader may not exist in another one (Aydın, 2005; Fleenor, 2006). So, the studies done since the 1960s started to focus on the behaviors of leaders rather than traits (Gardner, 1993; Güçlü, 2016).

In this context, the researches of Ohio State and Michigan Universities, Blake and Mouton's management pore theory studies shaped behavioral theory. Although they had different aspects from each other, it was seen that all of them focused on the basic behavioral differences that distinguish a leader from others, as well as reveal common behavioral patterns, and approach to behavior in a task-oriented and relationship-oriented manner (Çelik, 2005; Sağır, 2013; Yukl, 2010). While the behavioral studies had continued, some other studies started to focus on situations for leaders. From the moment the understanding that situations reveal leaders rather than being born as a leader (Hoy & Miskel, 2010) begins to manifest itself, contingency approaches to leadership were developed by Fiedler, House and Evans, Vroom and Yetton, Reddin, Hersey and Blachard. Although these approaches examined different situational conditions, when their common points were considered, it was concluded that leadership behaviors that can be effective in different situations are not predictable, the leader has a complex structure and there is no single universal leadership style (Aydın, 2005; Çelik, 2005;Yıldız, 2012).

Accordingly, leadership studies, which manifested itself with the trait theory, continued with behavioral and contingency approaches, and the perspective towards leadership was mostly shaped by these theories until the 1980s. However, some scientists began to question the usefulness of the concept of leadership and thought that leadership studies became boring due to the aforementioned limited approaches (Hoy & Miskel, 2010). For this reason, a modern aspect of leadership was born after the 1980s, and some contemporary leadership approaches have emerged. These approaches have been still evolving and some of these approaches can be named as the leadership of transactional, ethical, visionary, learner, transformational, instructional, shared, super, cultural, charismatic, processor, technological, sustainable, laissez-faire, sustainer, distributive, servant spiritual and quantum. As seen, there are many different approaches to leadership. When evaluated from a common point of view, it is seen that there is no generally accepted leadership type, organizations need different types of leadership at different times, not every leader needs to be successful in all situations and new approaches focus on more modern aspects such as social identity, collective power, and the importance of followers (Beycioğlu, 2016; Sağır, 2013; Winkler, 2010).

1.1. Statement of the Problem

As seen in the literature, the opinions on leadership have changed over time and leadership has been considered in a wider scope. This widening scope has brought along the diversification of scientific studies, increasing their density and changing their context from year to year (Billot, 2010; Harris, 2003). In this context, this study aims to examine broadly the leadership studies from the past to the present. To do this, this study addresses the studies on leadership carried out in the ERIC database from 1965 to the present in terms of leadership qualities, leadership styles, and leadership training based on scientometrics analysis. There are three main reasons why to choose these terms, this database, and this analysis. Here are these rationales:

Firstly, the reason for choosing these three concepts is that Katz and Kahn (1978) determined the leader's position, character, and behaviors as three elements in order to avoid confusion in concepts about leadership (cited in Hoy & Miskel, 2010). In other words, although there are many different aspects for leadership, when it is approached from a holistic perspective, the characteristics which a leader should have, the styles which a leader has, and leadership training in terms of the leader's position should be considered altogether based on the views of Katz and Kahn. So, this study tries to approach leadership holistically with these terms. Secondly, the reason why the ERIC database was preferred is that it indexes the studies on leadership between the related dates and that its size and diversity build a valuable structure for administrative fields. Thirdly, the reason why scientometrics analysis was used is that results obtained with scientometrics are important in terms of revealing the big picture and are among the highly preferred trends in terms of determining the saturation of the studies on the subject in the field. As a result, with the inclusion of these concepts in the ERIC database, it will be ensured that the results obtained by examining the studies from the past to the present with a global scientometrics perspective, in accordance with the historical development, will help to reveal the characteristic, behavioral, contingency and more modern aspects of the leader in a holistic manner.

1.2. Purpose of the Study

In this direction, by choosing these three concepts in this study, it is aimed; (1) to reveal what kind of findings have been reached in terms of the characteristics that leaders should have today; (2) to identify the leadership styles of leaders and (3) to show what kind of findings of leadership education are in the literature. In the end, although it is somewhat easier to deal with the process development of leadership in the studies conducted so far, it may be considered a slightly more demanding task to present the studies on leadership in comparison with a wider perspective.

1.3. Problem of the Study

In this context, in this study, the characteristics that a leader should have, the styles a leader follows, and how a leader has been educated are presented in a comparative manner. In this regard, it is thought that this study will be important in terms of observing comparative data in the literature and designing future studies. Accordingly, answers for the following research questions are sought within the scope of the study:

1. When the studies conducted in the ERIC database between 1965 and 2020 are examined, what is the quantitative breakpoint of the studies?

2. When the studies in the ERIC database are analyzed comparatively on the basis of descriptors of "Leadership-LE", "Leadership" + "Leadership Qualification- LQ-in-LE", "Leadership" + "Leadership Styles- LS-in-LE" and "Leadership" + "Leadership Training- LT-in-LE"; how do the studies differ according to (i) year, (ii) titles, (iii) summaries and (iv) where they were made in terms of the obtained breakpoint.

2. METHODOLOGY

2.1. Research Model

Data mining, which is one of the big data analysis methods, was used in the study. Data mining is an analysis method used to extract meaningful information and new patterns from unstructured and large amounts of text data sources (He, Zha & Li, 2013). There are two different road maps put forward by Gandomi and Haider (2015), and Chen and Zhang (2014), which can be followed as a roadmap in data mining processes. When the processes in these road maps are summarized in general, the processes of obtaining data from data sources, preparing this data for the analysis process, performing data analysis, and presenting the data in a visualized way come to the fore.

Within the scope of the study, it was aimed that the status, trends, and tendency of the publications related to Leadership (LE), Leadership Qualities (LQ) -in-LE, Leadership Styles (LS) -in-LE and Leadership Training (LT) -in-LE, and indexed in the ERIC database would be examined. In order to achieve this aim, the article records indexed in the ERIC database from the download page of the ERIC official website (www.eric.ed.gov) were downloaded and recorded as separate XML files for each year. After the recording process, in order to process ERIC data more easily in the later stages of the program, this data converted into Pandas data frame data type with help of Phyton ElementTree XML API (https://docs.python.org/3/library/xml.etree.elementtree.html) and Pandas (McKinney, 2010) libraries. Then, with the help of Pandas libraries, column names were standardized, unnecessary redundancies were removed, column names were changed, and only the data columns required for analysis were selected. After these operations, the file was saved to the computer with a file type that provides easy reading and writing.

2.2. Obtaining the Data

As the data source, ERIC which is an internet-based digital library was used. The reason for using the ERIC database within the scope of the study is that it indexes over 1000 journals and contains more publications on LE. When the publications about LE, scanned before 17.05.2020, were searched in ERIC, 13258 results were found. Therefore, in order to reveal the current situation regarding the studies on the LE subject, the publications indexed in the ERIC formed the data of the research. Articles published in January 2020 entered into the ERIC database and published as separate XML files starting from 1965 until 2020 were also included. There are several reasons for taking the studies carried out since the 1960s from the ERIC database on leadership for the research. First of all, it was aimed to examine the leadership studies through more up-to-date and accessible documents, similar to its historical process. Secondly, it was seen that researches were carried out on this subject and its derivatives by different researchers; especially in the study conducted by Samul (2019), it was seen that leadership was examined with the same technique on the Web of Science database starting with 1923. For this reason, it has been deemed appropriate to carry out the study on the ERIC database, which is world-renowned and used since the 1960s and is also a field index in terms of educational sciences. In addition, the leadership vision that should be possessed in the acquisition of 21st-century skills can be stated as the justification for the variables discussed in this study. It can be said that the variables related to the studies on leadership are effective in determining the trends in the field, as well as being important in the realization of long projection strategies in terms of showing the big picture. In this context, 13258 articles published between 1965 and 2020 formed the sample of the study. The number of studies and cumulative studies included in the scope of the study for each year are shown in Figure 1.
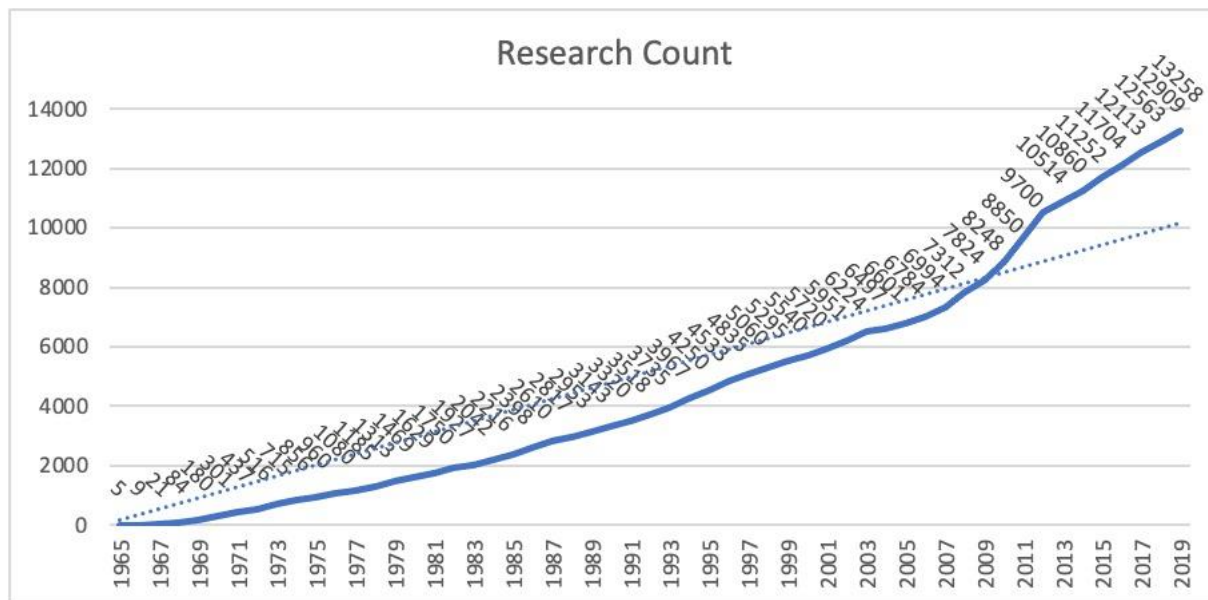
Figure 1. Annual and cumulative numbers of LE publications indexed in the ERIC database between 1965 and 2020

Thesaurus section in ERIC and descriptors assigned to publications by ERIC staff in this section were used in order to determine the sample and group the publications according to the purpose of the study. The sample was determined and grouped by using the descriptors of "Leadership" for LE, "Leadership" + "Leadership Qualification" for LQ-in-LE, "Leadership" + "Leadership" for LS-in-LE, and finally "Leadership" + for LT-in-LE. Using "Leadership Training". Year intervals and quantities of publications that constitute the data of the research are given in Table 1.

Table 1.
Year Intervals and Amounts of Publications

LE		LQ-in-LE		LS-in-LE		LT-in-LE	
Year Range	Publication Count	Year Range	Publication Count	Year Range	Publication Count	Year Range	Publication Count
1965-2020	13258	1965-2020	878	1965-2020	888	1965-2020	1133
1965-2010	8850	1965-2010	684	1965-2010	566	1965-2010	673
2010-2020	4408	2010-2020	194	2010-2020	322	2010-2020	460

As can be seen in Table 1, the studies on LE have been scanned in ERIC since 1965 and presented between the years 1965-2010 and 2010-2020. The reason for the year 2010 is that the relevant year is the cut-off point in the analyzes. Accordingly, from the total 13258 studies conducted between 1965 and 2020, 878 of them were LQ; LS concepts from 88 and LT from 1133 were studied together in the ERIC database. However, when looking at the studies carried out between 1965-2010; 8850 studies were related to LE, but 684 of these studies were considered with LQ, 566 with LS, and 673 with LT. Finally, while 4408 studies were conducted on LE between 2010-2020; 194 of these studies were worked with LQ, 322 with LS, and 460 of them with LT. When the statistics until 2010 were examined, it is seen that the number of studies conducted in LE, LQ-in-LE, LS-in-LE, and LT-in-LE has decreased in the years after 2010.

2.3. Data Analysis

In the process of examining the obtained publications, firstly the data were converted into Microsoft Excel format. Then a word transcript was created. A Python library (located at https://github.com/amueller/word_cloud) was used in the process of expressing the word enumeration with a word cloud with the basis of descriptive statistics. In addition, line charts were created according to the years of publication. All the analyzes made were compared and examined.

During the creation of the findings, some information was expressed in frequency values (f) and some information in the number of articles (N), and the analysis results were interpreted by comparing them with LE, LQ-in-LE, LS-in-LE, and LT-in-LE. In this context, the information of the publications was systematically analyzed in terms of years, geo, title, and abstract. Before the analysis of the title and summary sections of the publications, removing the punctuation marks from the text,

converting all words to lowercase letters, removing the commonly used and unnecessary words from the texts, and singularization of plural words were performed by using the library of NLTK (Bird, Loper & Klein, 2009).

2.4. Validity and Reliability

With data mining, which is the first stage of the research, the libraries used in the creation of data sets, word clouds, and graphics were specified. In the second stage, data mining was compared individually with the created data by the researchers, and draft findings were created. In the last stage, the draft findings prepared by the researchers were compared and reported by consensus.

3. FINDINGS

All of the results obtained in the study are presented in the relevant visuals. However, only the first five words that stand out with frequency analysis are included in the explanations under the relevant images. These findings are discussed on the basis of the relevant literature.

Distribution of Publications by Years

It can be said that studies on LE from 1965 to the present have been studied with variables different from LQ, LS, and LT variables. Accordingly, the graphs showing the annual publication numbers of LQ-in-LE, LS-in-LE, and LT-in-LE publications are also presented in Figure 2.
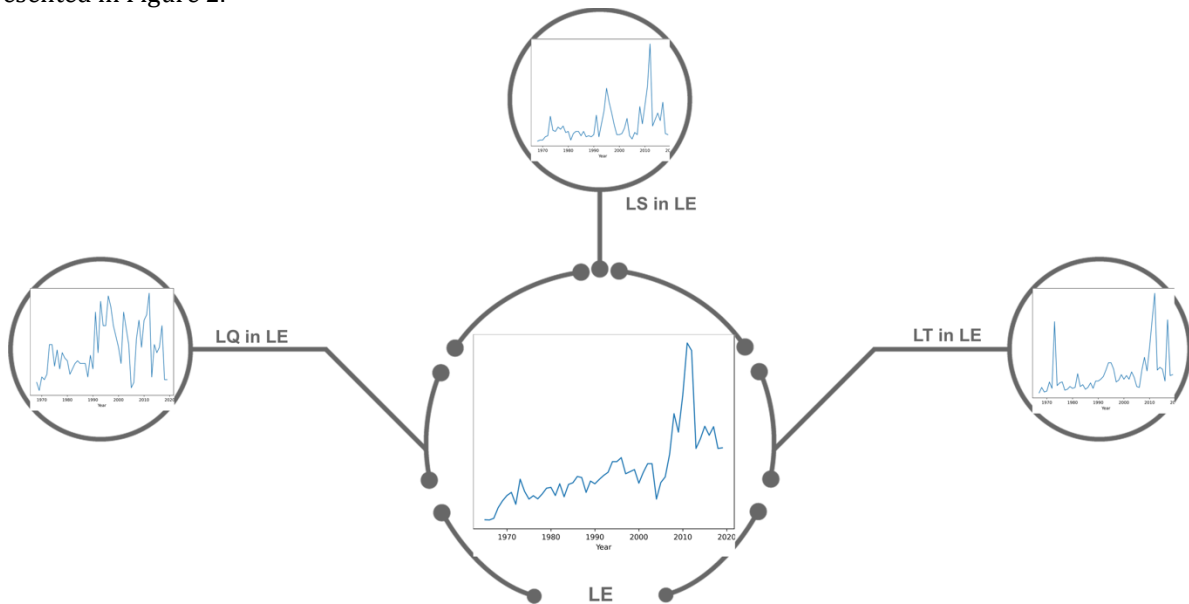
Figure 2. Annual chart of LE, LQ-in-LE, LS-in-LE and LT-in-LE publications indexed in the ERIC database between 1965 and 2020

Analysis of the titles of the publications

The word clouds that the titles of the studies conducted between 1965-2020 are examined periodically in terms of LE are shown in Figure 3.

Figure 3. Periodic examination of the titles of the studies indexed in the ERIC database in terms of LE

When Figure 3 is examined, it is understood that the titles of the studies on LE between the years 1965-2020 include school (f=2467), leader (f=1009), learning (f=896), development (f=840), program (f=714); between 2010 and 2020 the words

school (f=1095), learning (f=508), leader (f=388), development (f=350), teacher (f=309) were frequently used. Accordingly, it can be said that in the studies conducted between 2010-2020 words practice and higher were prominent. The word clouds, in which the titles of the studies conducted between 1965-2020 are examined periodically in terms of LQ-in-LE are shown in Figure 4.

Figure 4. Periodic examination of the titles of the studies indexed in the ERIC database in terms of LQ-in-LE

When Figure 4 is examined, it is understood that in the titles of the studies on LQ-in-LE between 1965-2020, the words leader (f = 140), school (f = 126), development (f = 60), principal (f = 51), teacher (f = 34) stand out; between 1965-2010 the words Leader (f = 103), school (f = 90), development (f = 47), principal (f = 37), teacher (f = 28); between 2010-2020 the words leader (f = 37), school (f = 36), principal (f = 14), learning (f = 14), development (f = 13) were frequently used.

The word clouds, where the titles of the studies conducted between 1965-2020 are examined periodically in terms of LS-in-LE are shown in Figure 5.

Figure 5. Periodic examination of the titles of the studies indexed in the ERIC database in terms of LS-in-LE

When Figure 5 is examined, it is understood that the titles of the studies on LS-in-LE between the years 1965-2020 include school (f = 194), leader (f = 112), principal (f = 95), style (f = 83), woman (f = 67) while the words stand out; School (f = 117), leader (f = 74), principal (f = 61), style (f = 45), role (f = 31); and in between 2010 and 2020 the words school (f = 77), style (f=38), leader (f = 38), woman (f = 36), principal (f = 34) were frequently used.

The word clouds, in which the titles of the studies conducted between 1965-2020 are examined periodically in terms of LT-in-LE are shown in Figure 6.

Figure 6. Periodic examination of the titles of the studies indexed in the ERIC database in terms of LT-in-LE

When Figure 6 is examined, it is seen that the titles of the studies on LT-in-LE between the years 1965-2020 have the words development (f = 203), leader (f = 164), program (f = 127), learning (f = 86), training (f = 84) ; in studies conducted between

1965-2010 the words development (f = 117), leader (f = 89), psychology (f = 76), introduction (f = 72), program (f = 69); and in studies conducted between 2010-2020 the words development (f = 86), leader (f = 75), program (f = 58), learning (f = 49), school (f = 39) were frequently used.

In Figure 7, the titles of the studies on LE, LQ-in-LE, and LS-in-LE between 1965 and 2020 are analyzed comparatively in terms of the number and uniqueness of the most frequently used words.

policy,	253	successful,	12	introduction,	18
curriculum,	229	21st,	11	gender,	13
building,	219	life,	10	segment,	13
child,	190	technical,	10	examination,	11
faculty,	174	art,	9	perceived,	11
improvement,	165	personality,	9	manager,	11
framework,	162	ethical,	9	decision,	10
support,	157	working,	8	literature,	10
need,	152	exploration,	8	primary,	9
rural,	141	competency,	8	satisfaction,	9
board,	139	eric,	8	structure,	9
science,	138	digest,	8	conflict,	9
information,	136	today,	8	department,	8
factor,	135	childhood,	8	good,	8
partnership,	135	taking,	8	male,	8
context,	131	world,	8	classroom,	8
educator,	126	global,	8	collaborative,	8
changing,	125	activity,	7	decision-making,	8
institutional,	117	officer,	7	small	8
exploring,	117	personel,	7		
international	116	outcome	7		

Figure 7. Non-common Word distributions in the titles in the studies on LE, LQ, and LS

As can be seen in Figure 7, the words policy, curriculum, building, child, and faculty are often used for LE (f = 21) between 1965-2020 in the titles.

For LQ-in-LE (f = 21), the words successful, 21st, life, technical, and art are often used; It has been determined that the words' introduction, gender, segment, examination, and perceived for LS-in-LE (f = 19) are unique and frequently used. At the same time, it is seen that between the years 1965-2010, the words (f = 25) for LE, (f = 18) for LQ-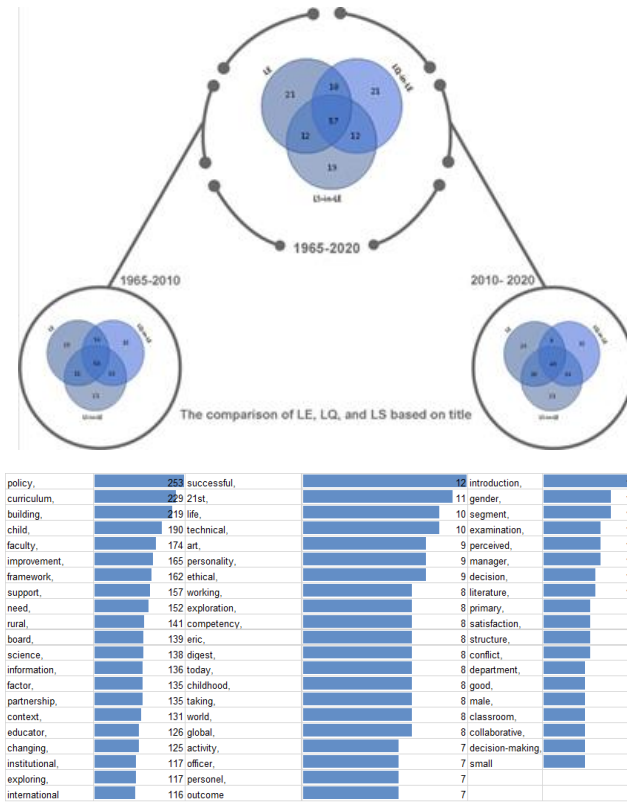in-LE and (f=21) for LS-in-LE; between 2010 and 2020 the words (f = 26) for LE, (f = 32) for LQ-in-LE and (f=21) for LS-in-LE were observed to be unique. This finding has come to the fore as an indicator of how far the analyzed publications are separated from each other. In the graphic in Figure 8, the most frequently used words in the titles of the studies conducted in LE, LQ-in-LE, and LS-in-LE fields between 1965-2020 are given comparatively with their numbers.

work,	225	technology,	302	style,	22
quality,	196	district,	208	characteristic,	20
library,	193	process,	189	lead,	15
business,	155	career,	180	executive,	14
lesson,	144	urban,	161	female,	13
assessment,	143	achievement,	149	servant,	12
youth,	134	implication,	143	vision,	12
vocational,	123	implementation,	141	administrative,	11
opportunity,	120	critical,	135	understanding,	9
instructional	120	secondary,	132	transformational,	9
		psychology,	123	concept,	8
		strategic	121	difference	7

Figure 8. The most frequently used words (with 2) for the titles in the studies conducted in LE, LQ-in-LE, and LS-in-LE fields between 1965 and 2020

- LE & LQ-in-LE (zone 2) (f = 10): work, quality, library, business, lesson
- LE & LS-in-LE (zone 4) (f = 12): technology, district, process, career, urban
- LQ-in-LE & LS-in-LE (zone 6) (f=12): style, characteristic, lead, executive, female

Figure 9 shows the use of the most frequently used words in the titles in the studies conducted in LE, LQ-in-LE, and LS-in-LE between 1965-2020.

LQ-in-LE	1.bölge frekanslar	3.bölge frekanslar	7.bölge frekanslar
school,	2467	126	194
leader,	1009	140	112
learning,	896	27	31
development,	840	60	29
program,	714	34	15
teacher,	692	34	50
principal,	643	51	95
higher,	595	27	27
change,	552	23	34
role,	530	29	40

Figure 9. The use of the most frequently used words in the headings in the studies conducted in LE, LQ-in-LE, and LS-in-LE fields between 1965-2020

- LE & LQ-in-LE & LS-in-LE (f=57): school, leader, learning, development, program

In Figure 10, the titles of the studies on LE, LQ-in-LE, and LT-in-LE between 1965-2020 are analyzed comparatively in numbers and the uniqueness of the most frequently used words.

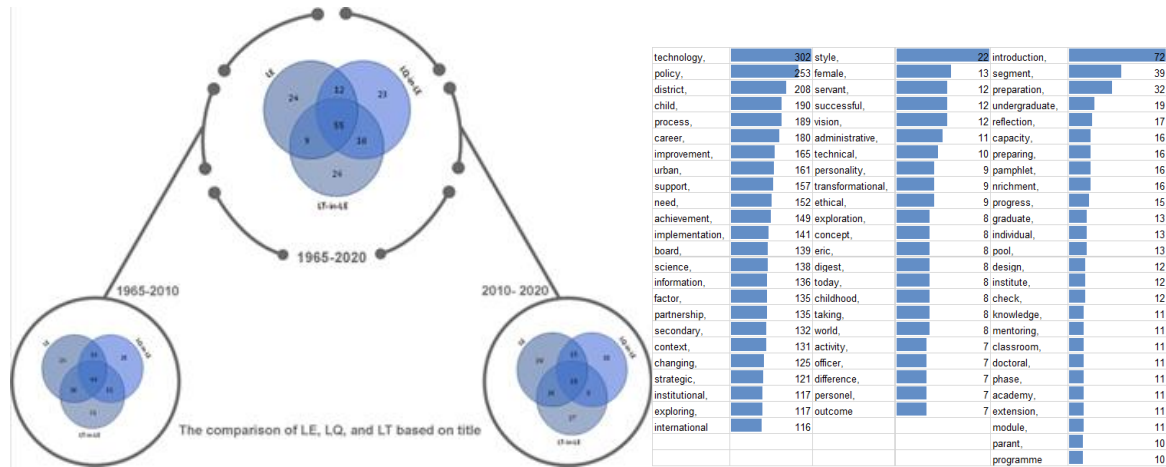|					
technology,	302	style,	22	introduction,	72
policy,	253	female,	13	segment,	39
district,	208	servant,	12	preparation,	32
child,	190	successful,	12	undergraduate,	19
process,	189	vision,	12	reflection,	17
career,	180	administrative,	11	capacity,	16
improvement,	165	technical,	10	preparing,	16
urban,	161	personality,	9	pamphlet,	16
support,	157	transformational,	9	nrichment,	16
need,	152	ethical,	9	progress,	15
achievement,	149	exploration,	8	graduate,	13
implementation,	141	concept,	8	individual,	13
board,	139	eric,	8	pool,	13
science,	138	digest,	8	design,	12
information,	136	today,	8	institute,	12
factor,	135	childhood,	8	check,	12
partnership,	135	taking,	8	knowledge,	11
secondary,	132	world,	8	mentoring,	11
context,	131	activity,	7	classroom,	11
changing,	125	officer,	7	doctoral,	11
strategic,	121	difference,	7	phase,	11
institutional,	117	personel,	7	academy,	11
exploring,	117	outcome	7	extension,	11
international	116			module,	11
				parant,	10
				programme	10

Figure 10. Non-Common Word Distributions in the titles in the studies on LE, LQ, and LT

As seen in Figure 10, the words technology, policy, district, child, and process are often used uniquely for LE (f = 24) between 1965-2020 in the titles. For LQ-in-LE (f = 23) style the words, female, servant, successful, and vision are frequently used in a unique way; for LT-in-LE (f = 26), the words introduction, segment, preparation, undergraduate, and reflection are unique and frequently used.

At the same time, it is seen that between the years 1965-2010, the words (f = 26) for LE, (f = 25) for LQ-in-LE and (f=31) for LT-in-LE; between 2010 and 2020 the words (f = 20) for LE, (f = 38) for LQ-in-LE and (f=27) for LT-in-LE were observed to be unique. This finding has come to the fore as an indicator of how far the analyzed publications are separated from each other. In the graphic in Figure 11, the most frequently used words in the titles of the studies conducted in LE, LQ-in-LE and LT-in-LE fields between 1965-2020 are given comparatively with their numbers.

strategy,	217	psychology,	77	lead,	24
reform,	214	implication,	13	competency,	17
quality,	196	curriculum,	13	executive,	14
library,	193	framework,	12	working,	13
performance,	189	building,	12	global,	13
president,	182	rural,	12	understanding,	12
success,	166	faculty,	12	life,	11
power,	151	educator,	11	characteristic,	11
elementary,	145	critical	11	art,	11
superintendent,	143			21st	11
opportunity,	120				
instructional	120				

Figure 11. The most frequently used words (with 2) for the titles in the studies conducted in LE, LQ-in-LE and LT-in-LE fields between 1965 and 2020

- LE & LQ-in-LE (zone 2) (f=12): strategy, reform, quality, library, performance
- LE & LT-in-LE (zone 4) (f=9): psychology, implication, curriculum, framework, building
- LQ-in-LE & LT-in-LE (zone 6) (f=10): lead, competency, executive, working, global

Figure 12 shows the use of the most frequently used words in the titles of the studies conducted in LE, LQ-in-LE, and LT-in-LE between 1965-2020.

LE(f=24) 1.bölge	LE(f=24) 1.bölge fr	LQ-in-LE (f=23) 3.böl	LT-in-LE (f=26) 7.bölg
school,	2467	126	83
leader,	1009	140	164
learning,	896	27	86
development,	840	60	203
program,	714	34	127
teacher,	692	34	27
principal,	643	51	38
higher,	595	27	32
change,	552	23	31
role	530	29	39

Figure 12. The use of the most frequently used words in the titles in the studies conducted in LE, LQ-in-LE, and LT-in-LE fields between 1965-2020

- LE & LQ-in-LE & LT-in-LE (f=55): school, leader, learning, development, program

In Figure 13, the titles of the studies on LE, LS-in-LE, and LT-in-LE between 1965 and 2020 are analyzed comparatively in terms of the number and uniqueness of the most frequently used words.

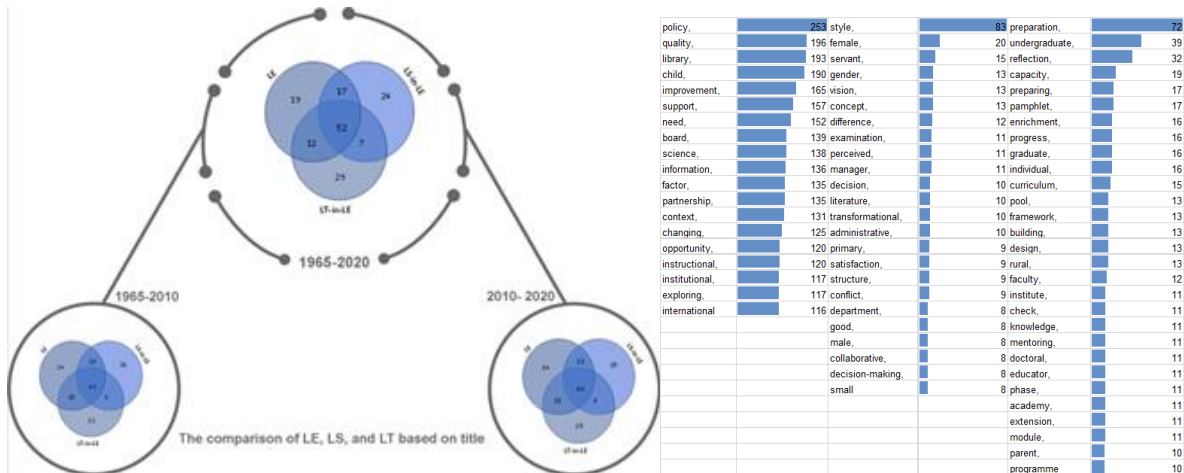| policy,	253	style,	83	preparation,	72
quality,	196	female,	20	undergraduate,	39
library,	193	servant,	15	reflection,	32
child,	190	gender,	13	capacity,	19
improvement,	165	vision,	13	preparing,	17
support,	157	concept,	13	pamphlet,	17
need,	152	difference,	12	enrichment,	16
board,	139	examination,	11	progress,	16
science,	138	perceived,	11	graduate,	16
information,	136	manager,	11	individual,	16
factor,	135	decision,	10	curriculum,	15
partnership,	135	literature,	10	pool,	13
context,	131	transformational,	10	framework,	13
changing,	125	administrative,	10	building,	13
opportunity,	120	primary,	9	design,	13
instructional,	120	satisfaction,	9	rural,	13
institutional,	117	structure,	9	faculty,	12
exploring,	117	conflict,	9	institute,	11
international	116	department,	8	check,	11
		good,	8	knowledge,	11
		male,	8	mentoring,	11
		collaborative,	8	doctoral,	11
		decision-making,	8	educator,	11
		small	8	phase,	11
				academy,	11
				extension,	11
				module,	11
				parent,	10
				programme	10

Figure 13. Non-Common Word Distributions in the titles of the studies on LE, LS, and LT

As seen in Figure 13, the words policy, quality, library, child, improvement are often used uniquely for LE (f = 19) between 1965-2020 in the titles. For LS-in-LE (f = 24) the words style, female, servant, gender, vision are often used in a unique way; For LT-in-LE (29), the words preparation, undergraduate, reflection, capacity, preparing are unique and frequently used. At the same time, it is seen that between the years 1965-2010, the words (f = 24) for LE, (f = 30) for LQ-in-LE and (f=33) for LT-in-LE; between 2010 and 2020 the words (f = 14) for LE, (f = 29) for LQ-in-LE and (f=29) for LT-in-LE were observed to be unique. This finding has come to the fore as an indicator of how far the analyzed publications are separated from each other. In the graphic in Figure 14, the most frequently used words in the titles in the studies conducted in LE, LS-in-LE, and LT-in-LE fields between 1965-2020 are given comparatively with their numbers.

technology,	302	youth,	22	lead,	24
strategy,	217	vocational,	21	executive,	14
reform,	214	lesson,	20	understanding,	12
district,	208	competency,	17	institute,	12
process,	189	working,	13	check,	12
performance,	189	business,	13	life,	11
president,	182	global,	13	characteristic	11
career,	180	life,	11		
success,	166	art,	11		
urban,	161	assessment,	11		
power,	151	work,	11		
achievement,	149	21st	11		
elementary,	145				
superintendent,	143				
implementation,	141				
secondary,	132				
strategic.	121				

Figure 14. The most frequently used words (with 2) for the titles in the studies conducted in LE, LS-in-LE and LT-in-LE fields between 1965-2020

- LE & LS-in-LE (zone 2) (f=17): technology, strategy, reform, district, process
- LE & LT-in-LE (zone 4) (f=12): youth, vocational, lesson, competency, working
- LS-in-LE & LT-in-LE (zone 6) (f=7): lead, executive, understanding, institute, check

In Figure 15, the use of the most frequently used words in the titles in the studies conducted in LE, LS-in-LE, and LT-in-LE between 1965-2020 are shown.

LE(f=19) 1.bölge	LE(f=19) 1.bölge frek	LS-in-LE (f=24) 3.bö	LT-in-LE (f=29) 7.böl
school,	2467	194	83
leader,	1009	112	164
learning,	896	31	86
development,	840	29	203
program,	714	15	127
teacher,	692	50	27
principal,	643	95	38
higher,	595	27	32
change,	552	34	31
role,	530	40	39

Figure 15. The use of the most frequently used words in the titles in the studies conducted in LE, LS-in-LE, and LT-in-LE fields between 1965-2020

- LE & LS-in-LE & LT-in-LE (f=52): school, leader, learning, development, program

In Figure 16, the titles of the studies on LQ-in-LE, LS-in-LE, and LT-in-LE between 1965-2020 are analyzed comparatively in terms of the number and uniqueness of the most frequently used words.

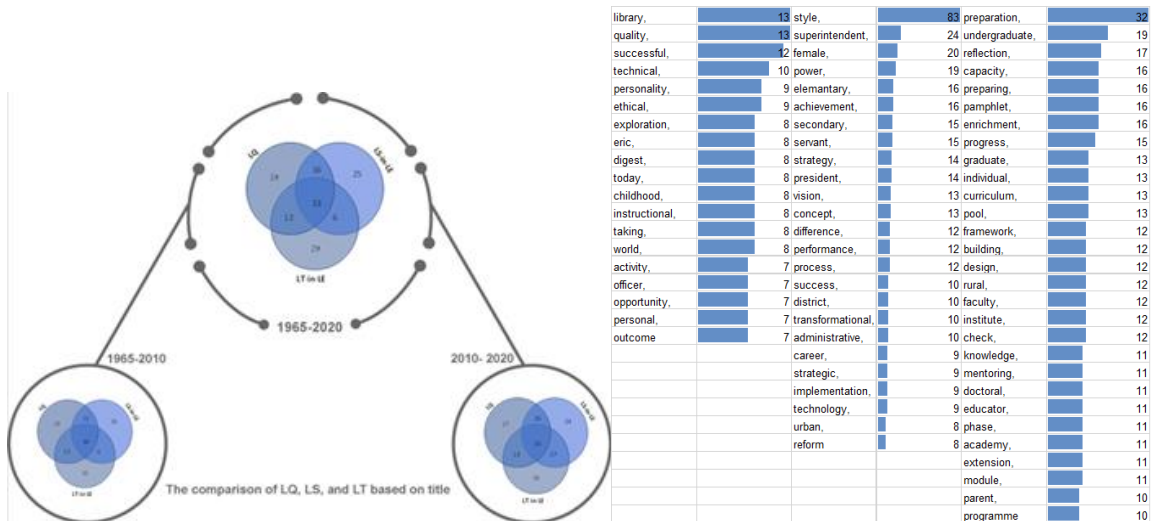|					
library,	13	style,	83	preparation,	32
quality,	13	superintendent,	24	undergraduate,	19
successful,	12	female,	20	reflection,	17
technical,	10	power,	19	capacity,	16
personality,	9	elementary,	16	preparing,	16
ethical,	9	achievement,	16	pamphlet,	16
exploration,	8	secondary,	15	enrichment,	16
eric,	8	servant,	15	progress,	15
digest,	8	strategy,	14	graduate,	13
today,	8	president,	14	individual,	13
childhood,	8	vision,	13	curriculum,	13
instructional,	8	concept,	13	pool,	13
taking,	8	difference,	12	framework,	12
world,	8	performance,	12	building,	12
activity,	7	process,	12	design,	12
officer,	7	success,	10	rural,	12
opportunity,	7	district,	10	faculty,	12
personal,	7	transformational,	10	institute,	12
outcome	7	administrative,	10	check,	12
		career,	9	knowledge,	11
		strategic,	9	mentoring,	11
		implementation,	9	doctoral,	11
		technology,	9	educator,	11
		urban,	8	phase,	11
		reform	8	academy,	11
				extension,	11
				module,	11
				parent,	10
				programme	10

Figure 16. Non-Common Word Distributions in the titles in the studies on LQ, LS, and LT

As seen in Figure 16, the words library, quality, successful, technical, and personality are often used uniquely for LQ (f = 19) between 1965-2020 in the titles. For LS-in-LE (f = 25) the words style, superintendent, female, power, and elementary are

often used uniquely; for LT-in-LE (f = 29), the words preparation, undergraduate, reflection, capacity, and preparing are unique and frequently used. At the same time, it is seen that between the years 1965-2010, the words 19 (f = 19) for LQ, (f = 26) for LQ-in-LE and (f=35) for LT-in-LE; between 2010 and 2020 the words (f = 27) for LQ, (f = 24) for LQ-in-LE and (f=36) for LT-in-LE were observed to be unique. This finding has come to the fore as an indicator of how far the analyzed publications are separated from each other. In the graphic in Figure 17, the most frequently used words in the titles of the studies conducted in the fields of LQ-in-LE, LS-in-LE, and LT-in-LE between 1965-2020 are given comparatively with their numbers.

gender,	13	vocational,	15	psychology,	77
examination,	11	youth,	12	introduction,	72
perceived,	11	21st,	11	segment,	39
manager,	11	lesson,	11	implication,	13
decision,	10	work,	11	classroom,	11
literature,	10	assessment,	10	critical	11
primary,	9	life,	10		
satisfaction,	9	business,	10		
structure,	9	art,	9		
conflict,	9	working,	8		
department,	8	competency,	8		
good,	8	global	8		
male,	8				
collaborative,	8				
decision-making,	8				
small	8				

Figure 17. The most frequently used words (with 2) of the titles in the studies conducted in LQ-in-LE, LS-in-LE, and LT-in-LE fields between 1965 and 2020

- LQ-in-LE & LS-in-LE (zone 2) (f=16): gender, examination, perceived, manager, decision
- LQ-in-LE & LT-in-LE (zone 4) (f=12): vocational, youth, 21st, lesson, work
- LS-in-LE & LT-in-LE (zone 6) (f=6): psychology, introduction, segment, implication, classroom

Figure 18 shows the use of the most commonly used words in the titles of the studies conducted in LQ-in-LE, LS-in-LE, and LT-in-LE between 1965-2020.

	LQ(f=19) 1.bölge fr	LS-in-LE (f=25)3.	LT-in-LE (f=29)7.bölg
leader,	140	112	164
school,	126	194	83
development,	60	29	203
principal,	51	95	38
teacher,	34	50	27
program,	34	15	127
woman,	33	67	46
practice,	31	39	57
behavior,	30	38	22
role,	29	40	39

Figure 18. The use of the most frequently used words in the titles of the studies conducted in LQ-in-LE, LS-in-LE, and LT-in-LE between 1965 and 2020

- LQ-in-LE & LS-in-LE & LT-in-LE (f=53): leader, school, development, principal, teacher

Analysis of abstracts of the publications
The word clouds, where the summaries of the studies conducted between 1965-2020 are examined periodically in terms of LE, are shown in Figure 19.
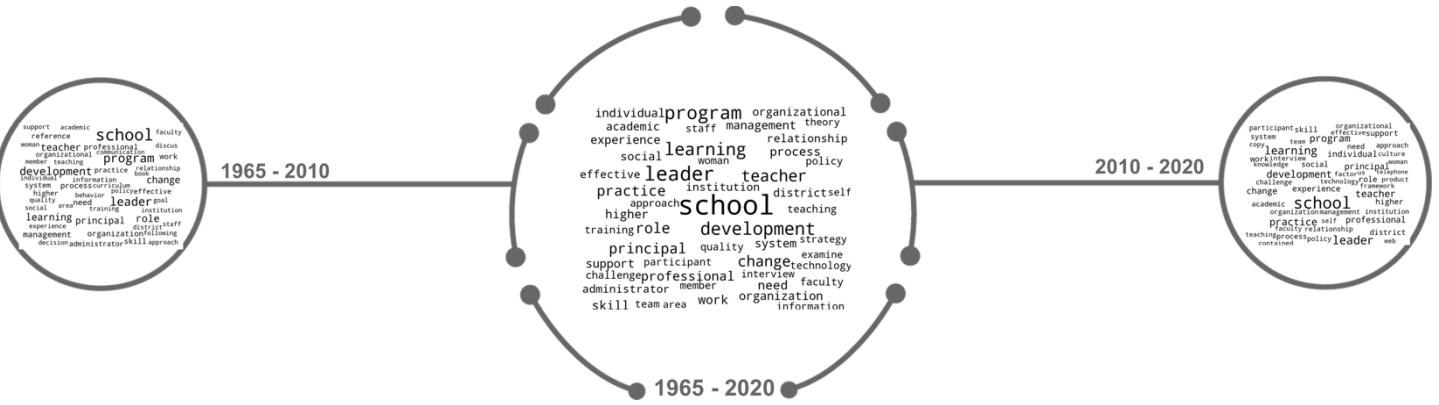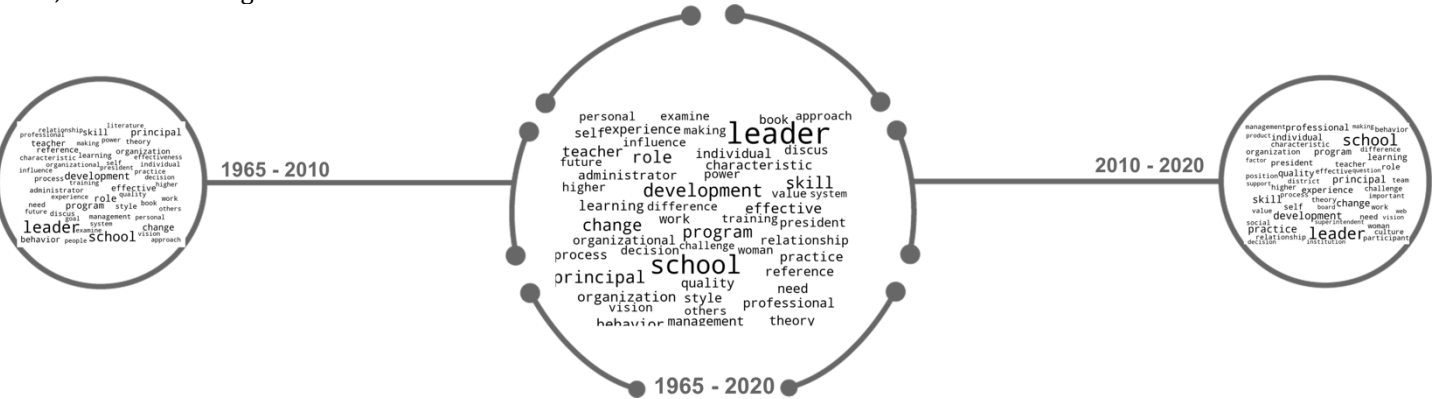
Figure 19. Periodic review of the abstracts of studies indexed in the ERIC database in terms of LE

When Figure 19 is examined, it is understood that in the summary section of the studies on LE between the years 1965-2020, the words school (f = 15616), development (f = 6511), leader (f = 6447), learning (f = 6154), program (f = 5933); and between 2010 and 2020 the words school (f = 8111), learning (f = 3528), leader (f = 3197), development (f = 2933), teacher (f = 2683) were frequently used.

Word clouds, in which the summaries of the studies conducted between 1965-2020 are examined periodically in terms of LQ-in-LE, are shown in Figure 20.

Figure 20. Periodic review of the abstracts of the studies indexed in the ERIC database in terms of LQ-in-LE

When Figure 20 is examined, it is understood that in the summary section of the studies on LQ-in-LE between the years 1965-2020, the words leader (f = 1004), school (f = 814), development (f = 409), change (f = 315), role (f = 285); and between 2010 and 2020 the words school (f = 279), leader (f = 266), development (f = 107), practice (f = 90), change (f = 88) were frequently used.

The word clouds, where the summaries of the studies conducted between 1965-2020 are examined periodically in terms of LS-in-LE are shown in Figure 21.

Figure 21. Periodic review of the abstracts of studies indexed in the ERIC database in terms of LS-in-LE

When Figure 21 is examined, it is understood that in the summary section of the studies on LS-in-LE between the years 1965-2020, the words school (f = 1177), leader (f = 849), principal (f = 525), style (f = 506), teacher (f = 394); and between the years 2010-2020 the words school (f = 554), leader (f = 351), style (f = 244), principal (f = 223), teacher (f = 200) were frequently used.

The word clouds, in which the summaries of the studies conducted between 1965-2020 are examined periodically in terms of LT-in-LE, are shown in Figure 22.

Figure 22. Periodic review of the summaries of the studies indexed in the ERIC database in terms of LT-in-LE

When Figure 22 is examined, it is seen that in the summary section of the studies on LT-in-LE between the years 1965-2020, the words development (f = 1188), program (f = 983), leader (f = 966), school (f = 753), educational management (em) (f = 664); between the years 1965-2010 the words em (f = 664), development (f = 634), program (f = 572), leader (f = 500), school (f = 421); and between 2010 and 2020 the words development (f = 551), leader (f = 466), program (f = 410), school (f = 332), learning (f = 303) were frequently used.

In Figure 23, the summaries of the studies on LE, LQ-in-LE and LS-in-LE between 1965 and 2020 are analyzed comparatively in terms of the number and uniqueness of the most frequently used words.

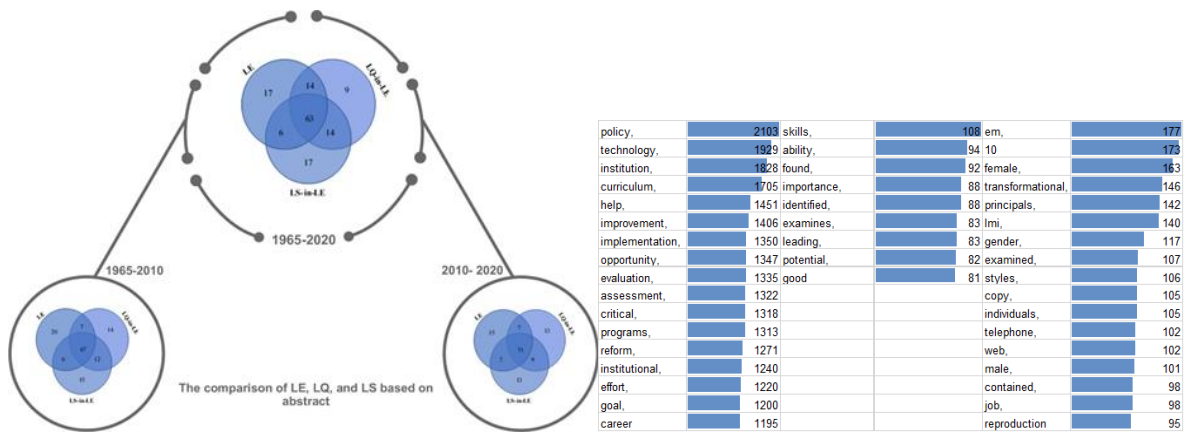|						
policy,	2103	skills,	108	em,	177
technology,	1929	ability,	94	10	173
institution,	1828	found,	92	female,	163
curriculum,	1705	importance,	88	transformational,	146
help,	1451	identified,	88	principals,	142
improvement,	1406	examines,	83	lmi,	140
implementation,	1350	leading,	83	gender,	117
opportunity,	1347	potential,	82	examined,	107
evaluation,	1335	good	81	styles,	106
assessment,	1322			copy,	105
critical,	1318			individuals,	105
programs,	1313			telephone,	102
reform,	1271			web,	102
institutional,	1240			male,	101
effort,	1220			contained,	98
goal,	1200			job,	98
career	1195			reproduction	95

Figure 23. Non-Common Word Distributions in Abstracts of Studies on LE, LQ, and LS

As can be seen in Figure 23, the words policy, technology, institution, curriculum, and help are often used uniquely for LE (f = 17) between 1965-2020 in the abstracts. For LQ-in-LE (f = 9) the words skills, ability, found, importance, and identified are often used uniquely; for LS-in-LE (f = 17), the words em, 010, female, transformational, and principals were found to be unique and frequently used. At the same time, it is seen that between the years 1965-2010, the words (f = 20) for LE, (f = 14) for LQ-in-LE and (f=15) for LS-in-LE; between 2010 and 2020 the words (f = 15) for LE, (f = 13) for LQ-in-LE and (f=13) for LS-in-LE were observed to be unique. This finding has come to the fore as an indicator of how far the analyzed publications are separated from each other. In the graphic in Figure 24, the most frequently used words in the abstracts of the studies conducted in LE, LQ-in-LE and LS-in-LE fields between 1965-2020 are given comparatively with their numbers.

training,	2092	district,	2224	style,	506
knowledge,	1733	achievement,	2114	superintendent,	161
important,	1500	teaching,	1550	difference,	133
activity,	1493	factor,	1494	effectiveness,	132
area,	1455	environment,	1279	power,	125
following,	1453	framework	1234	others,	124
action,	1433			decision,	121
impact,	1416			vision,	116
people,	1361			structure,	115
developing,	1349			characteristic,	111
board,	1348			position,	105
current,	1266			lead,	104
develop,	1265			concept,	104
question	1248			making	102

Figure 24. The most frequently used words (with 2) in the abstracts of the studies conducted in LE, LQ-in-LE, and LS-in-LE fields between 1965-2020

- LE & LQ-in-LE (zone 2) (f=14): training,knowledge,important,activity,area
- LE & LS-in-LE (zone 4) (f=6): district,achievement,teaching,factor,environment
- LQ-in-LE & LS-in-LE (zone 6) (f=14): style, superintendent, difference, effectiveness, power

Figure 25 shows the use of the most frequently used words in the abstracts of the studies conducted in LE, LQ-in-LE, and LS-in-LE between 1965-2020.

LE & LS-in-LE &	LE1.bölge frekans	LQ-in-LE 3.bölge frek	LS-in-LE 7.bölge freka
school,	15616	814	1177
development,	6511	409	353
leader,	6447	1004	849
learning,	6154	212	240
program,	5933	256	164
teacher,	5324	244	394
change,	4570	315	333
role,	4164	285	282
practice,	3755	194	293
principal,	3493	283	525

Figure 25. The use of the most frequently used words in the abstracts of the studies conducted in LE, LQ-in-LE, and LS-in-LE fields between 1965-2020

- LE & LQ-in-LE & LS-in-LE (zone 5) (f=63): school, development, leader, learning, program

In Figure 26, the summaries of the studies on LE, LQ-in-LE, and LT-in-LE between 1965 and 2020 are analyzed comparatively in terms of the number and uniqueness of the most frequently used words.

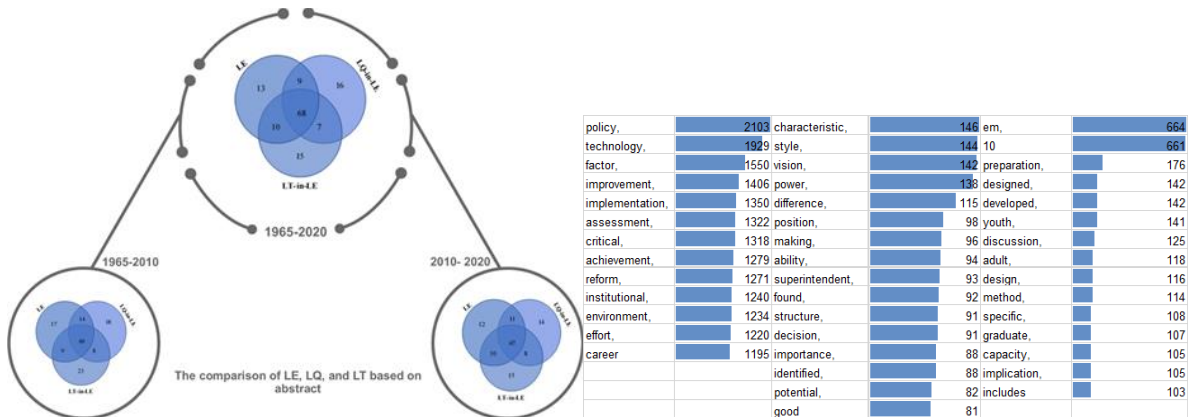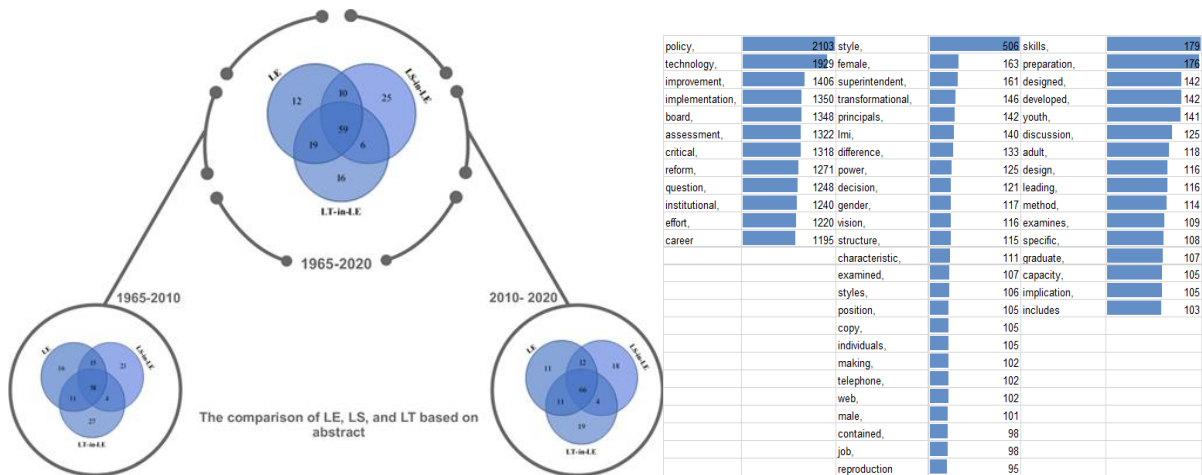|					
policy,	2103	characteristic,	146	em,	664
technology,	1929	style,	144	10	661
factor,	1550	vision,	142	preparation,	176
improvement,	1406	power,	138	designed,	142
implementation,	1350	difference,	115	developed,	142
assessment,	1322	position,	98	youth,	141
critical,	1318	making,	96	discussion,	125
achievement,	1279	ability,	94	adult,	118
reform,	1271	superintendent,	93	design,	116
institutional,	1240	found,	92	method,	114
environment,	1234	structure,	91	specific,	108
effort,	1220	decision,	91	graduate,	107
career	1195	importance,	88	capacity,	105
		identified,	88	implication,	105
		potential,	82	includes	103
		good	81		

Figure 26. Non-Common Word Distributions in Abstracts of Studies on LE, LQ, and LT

As seen in Figure 26, the words policy, technology, factor, improvement, and implementation are often used uniquely for LE (f = 13) between 1965-2020 in the abstracts. For LQ-in-LE (f = 16) the words characteristic, style, vision, power, and difference are often used uniquely; for LT-in-LE (f = 15) the words em, 010, preparation, designed, and developed were found to be unique and frequently used. At the same time, it is seen that between the years 1965-2010, the words (f = 17) for LE, (f = 18) for LQ-in-LE and (f=23) for LT-in-LE; between 2010 and 2020 the words (f = 12) for LE, (f=14) for LQ-in-LE and (f=15) for LT-in-LE were observed to be unique. This finding has come to the fore as an indicator of how far the analyzed publications are separated from each other. In the graphic in Figure 27, the most frequently used words in the abstracts of the studies conducted in LE, LQ-in-LE and LT-in-LE fields between 1965-2020 are given comparatively with their numbers.

2244	district,	2224	others,		130
1682	teaching,	2114	effectiveness,		112
1481	institution,	1828	skills,		108
1358	curriculum,	1705	concept,		95
1348	framework,	1494	lead,		93
1291	help,	1451	examines,		83
1248	opportunity,	1347	leading,		83
1223	evaluation,	1335			
1214	programs,	1313			
	goal,	1200			

Figure 27. The most frequently used words (with 2) in the abstracts of the studies conducted in LE, LQ-in-LE, and LT-in-LE fields between 1965-2020

- LE & LQ-in-LE (zone 2) (f=9): president, influence, culture, schools, success
- LE & LT-in-LE (zone 4) (f=10): programs, help, teaching, curriculum, evaluation
- LQ-in-LE & LT-in-LE (zone 6) (f=7): others, effectiveness, skills, concept, lead

In Figure 28, the cases of using the most frequently used words in the abstracts of the studies conducted in LE, LQ-in-LE, and LT-in-LE between the years 1965-2020 are shown.

LE & LQ-in-LE&	LE1.bölge frekans	LQ-in-LE 3.bölge frel	LT-in-LE 7.bölge frek
school,	15616	814	753
development,	6511	409	1188
leader,	6447	1004	966
learning,	6154	212	596
program,	5933	256	983
teacher,	5324	244	229
change,	4570	315	302
role,	4164	285	281
practice,	3755	194	342
principal,	3493	283	193

Figure 28. The usage of the most frequently used words in the abstracts of the studies conducted in LE, LQ-in-LE, and LT-in-LE fields between 1965 and 2020

- LE & LQ-in-LE & LT-in-LE (zone 5) (f=68): school, development, leader, learning, program

In Figure 29, the summaries of the studies on LE, LS-in-LE, and LT-in-LE between 1965-2020 are analyzed comparatively in terms of number and uniqueness of the most frequently used words.
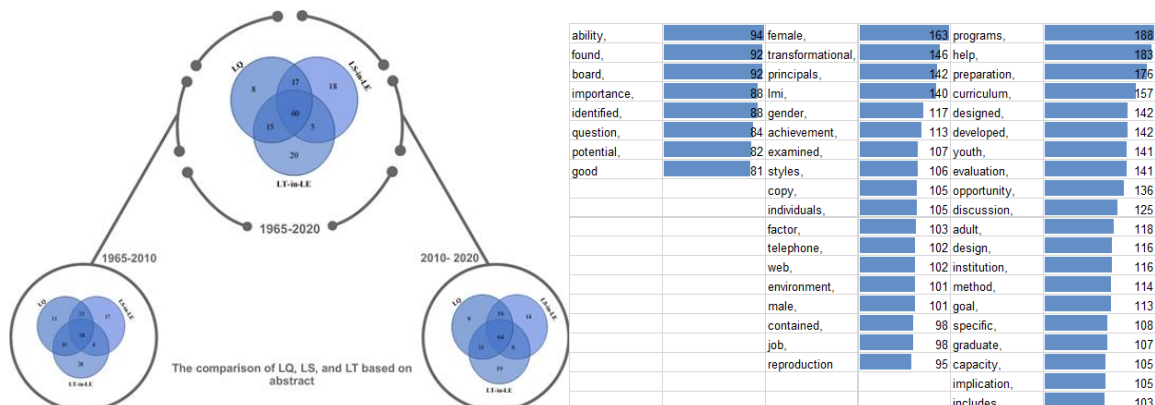

policy,	2103	style,	506	skills,	179
technology,	1929	female,	163	preparation,	176
improvement,	1406	superintendent,	161	designed,	142
implementation,	1350	transformational,	146	developed,	142
board,	1348	principals,	142	youth,	141
assessment,	1322	lmi,	140	discussion,	125
critical,	1318	difference,	133	adult,	118
reform,	1271	power,	125	design,	116
question,	1248	decision,	121	leading,	116
institutional,	1240	gender,	117	method,	114
effort,	1220	vision,	116	examines,	109
career	1195	structure,	115	specific,	108
		characteristic,	111	graduate,	107
		examined,	107	capacity,	105
		styles,	106	implication,	105
		position,	105	includes	103
		copy,	105		
		individuals,	105		
		making,	102		
		telephone,	102		
		web,	102		
		male,	101		
		contained,	98		
		job,	98		
		reproduction	95		

Figure 29. Non-Common Word Distributions in Abstracts of Studies on LE, LS and LT

As seen in Figure 29, the words policy, technology, improvement, implementation, and board are often used uniquely for LE (f=12) between 1965-2020 in the abstracts. For LS-in-LE (f = 25) the words style, female, superintendent, transformational, and principals are often used uniquely; for LT-in-LE (f = 16) the words skills, preparation, designed, developed and youth were unique and frequently used. At the same time, it is seen that between the years 1965-2010, the words (f = 16) for LE, (f = 23) for LS-in-LE and (f=27) for LT-in-LE; between 2010 and 2020 the words (f = 11) for LE, (f = 18) for LS-in-LE and (f=19) for LT-in-LE were observed to be unique. This finding has come to the fore as an indicator of how far the analyzed publications are separated from each other. In the graphic in Figure 30, the most frequently used words in the abstracts of the studies conducted in LE, LS-in-LE, and LT-in-LE fields between 1965-2020 are given comparatively with their numbers.

schools,	2244	training,	2092	em,	177
culture,	1682	institution,	1828	10	173
factor,	1550	knowledge,	1733	effectiveness,	132
success,	1481	curriculum,	1705	others,	124
influence,	1358	important,	1500	lead,	104
perception,	1291	activity,	1493	concept	104
achievement,	1279	area,	1455		
environment,	1234	following,	1453		
president,	1223	help,	1451		
successful	1214	action,	1433		
		impact,	1416		
		people,	1361		
		developing,	1349		
		opportunity,	1347		
		evaluation,	1335		
		programs,	1313		
		current,	1266		
		develop,	1265		
		goal	1200		

Figure 30. The most frequently used words (with 2) of abstracts of studies conducted in LE, LS-in-LE, and LT-in-LE fields between 1965 and 2020

- LE & LS-in-LE (zone 2) (f=10): schools, culture, influence, success, perception
- LE & LT-in-LE (zone 4) (f=19): training, institution, knowledge, curriculum, important
- LS-in-LE & LT-in-LE (zone 6) (f=6): em, 010, effectiveness, others, lead

In Figure 31, the cases of using the most frequently used words in the abstracts of the studies conducted in LE, LS-in-LE, and LT-in-LE between the years 1965-2020 are shown.

LE & LS-in-LE&	LE 1.bölge frekanslar	LS-in-LE 3.bölge fre	LT-in-LE 7.bölge frek
school,	15616	1177	753
development,	6511	353	1188
leader,	6447	849	966
learning,	6154	240	596
program,	5933	164	983
teacher,	5324	394	229
change,	4570	333	302
role,	4164	282	281
practice,	3755	293	342
principal,	3493	525	193

Figure 31. The use of the most frequently used words in the abstracts of the studies conducted in LE, LS-in-LE, and LT-in-LE fields between 1965-2020

- LE & LS-in-LE & LT-in-LE (zone 5) (f=59): school, development, leader, learning, program

In Figure 32, the summaries of the studies on LQ-in-LE, LS-in-LE, and LT-in-LE between 1965 and 2020 are analyzed comparatively in terms of the number and uniqueness of the most frequently used words.

ability,	94	female,	163	programs,	188
found,	92	transformational,	146	help,	183
board,	92	principals,	142	preparation,	176
importance,	88	lmi,	140	curriculum,	157
identified,	88	gender,	117	designed,	142
question,	84	achievement,	113	developed,	142
potential,	82	examined,	107	youth,	141
good	81	styles,	106	evaluation,	141
		copy,	105	opportunity,	136
		individuals,	105	discussion,	125
		factor,	103	adult,	118
		telephone,	102	design,	116
		web,	102	institution,	116
		environment,	101	method,	114
		male,	101	goal,	113
		contained,	98	specific,	108
		job,	98	graduate,	107
		reproduction	95	capacity,	105
				implication,	105
				includes	103

Figure 32. Non-Common Word Distributions in Abstracts of Studies on LQ, LS, and LT

As seen in Figure 32, the words ability, found, board, importance, identified are often used uniquely for LQ (f = 8) between 1965-2020 in the titles. For LS-in-LE (f=18) the words female, transformational, principals, lmi, and gender are often used uniquely; For LT-in-LE (f=20), the words programs, help, preparation, curriculum, and designed are determined to be unique and frequently used. At the same time, it is seen that between the years 1965-2010, the words (f = 11) for LQ, (f = 17) for LS-in-LE and (f=28) for LT-in-LE; between 2010 and 2020 the words (f = 9) for LQ, (f = 14) for LS-in-LE and (f=19) for LT-in-LE were observed to be unique. This finding has come to the fore as an indicator of how far the analyzed publications are separated from each other. In the graphic in Figure 33, the most frequently used words in abstracts of the studies conducted in the fields of LQ-in-LE, LS-in-LE, and LT-in-LE between 1965-2020 are given comparatively with their numbers.

style,	506	training,	134	em,	177
schools,	173	people,	121	10	173
superintendent,	161	developing,	113	district,	161
culture,	160	skills,	108	teaching,	104
influence,	133	knowledge,	107	framework,	101
difference,	133	develop,	97		
success,	128	following,	96		
perception,	127	important,	96		
power,	125	current,	94		
decision,	121	impact,	93		
successful,	118	examines,	83		
president,	116	leading,	83		
vision,	116	action,	82		
structure,	115	activity,	82		
characteristic,	111	area	80		
position,	105				
making,	102				

Figure 33. The most frequently used words (with 2) of abstracts of studies conducted in LQ-in-LE, LS-in-LE, and LT-in-LE fields between 1965 and 2020

- LQ-in-LE & LS-in-LE (zone 2) (f=17): style, schools, superintendent, culture, influence
- LQ-in-LE & LT-in-LE (zone 4) (f=15): training, people, developing, skills, knowledge
- LS-in-LE & LT-in-LE (zone 6) (f=5): em, 010, district, teaching, framework

In Figure 34, the use of the most frequently used words in the abstracts of the studies conducted in LQ-in-LE, LS-in-LE, and LT-in-LE between 1965-2020 are shown.

LQ-in-LE & LS-in	LQ1.bölge frekansl	LS-in-LE 3.bölge	LT-in-LE 7.bölge freka
leader,	1004	849	966
school,	814	1177	753
development,	409	353	1188
change,	315	333	302
role,	285	282	281
principal,	283	525	193
leaders,	270	215	320
program,	256	164	983
effective,	251	267	261
teacher,	244	394	229

Figure 34. The use of the most frequently used words in the abstracts of the studies conducted in LQ-in-LE, LS-in-LE, and LT-in-LE between 1965-2020

- LQ-in-LE & LS-in-LE & LT-in-LE (zone 5) (f=60): leader, school, development, change, role

Analysis of the Publications According to Country/Location Variable

When the studies conducted in 1965-2020 are examined periodically in LE, the word clouds can be seen below.
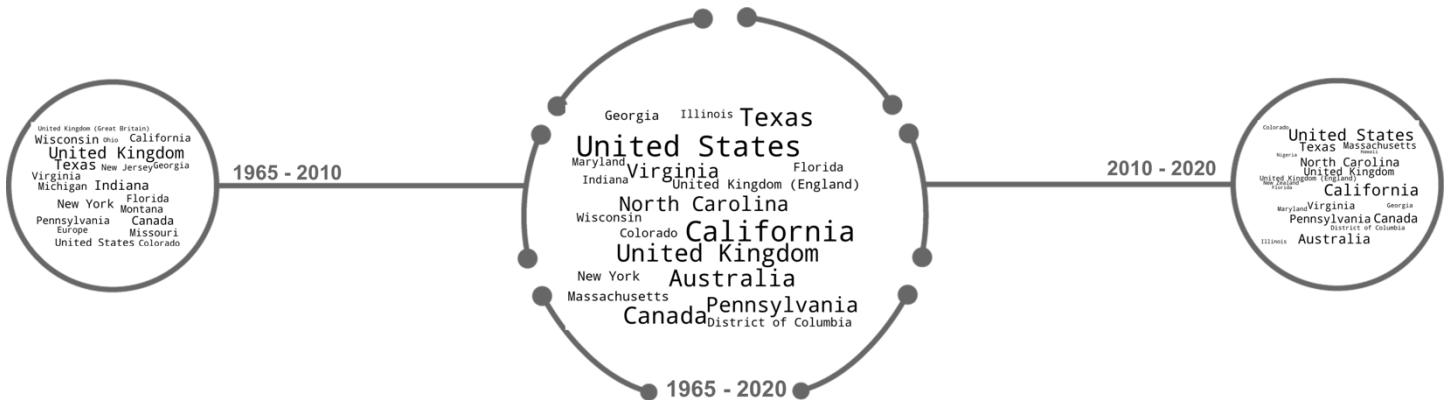
Figure 35. Periodic analysis of the countries/places where the studies indexed in the ERIC database were conducted in terms of LE

When Figure 35 is examined, it is seen that the places where the studies on LE were carried out between 1965-2020 were California (f = 305), United States (f = 304), Australia (f = 291), Canada (f = 265), United Kingdom (f = 217); between 1965-2010 Canada (f = 145), Australia (f = 110), United Kingdom (f = 100), United States (f = 95), California (f = 88); and between 2010-2020 California (f = 88), United States (f = 88), Australia (f = 88), Canada (f = 88), United Kingdom (f = 88).

The word clouds that the countries/places where the studies were carried out between the years 1965-2020 are examined periodically in terms of LQ-in-LE are shown in Figure 36 below.

Figure 36. Periodic analysis of the countries/places where the studies indexed in the ERIC database were conducted in terms of LQ-in-LE

When Figure 36 is examined, it is seen that the countries/places where the studies on LQ-in-LE were carried out between 1965-2020 are Canada (f = 14), Australia (f = 13), United Kingdom (f = 11), Texas (f = 10). While it is seen to be United States (f = 10); Between the years 1965-2010, Canada (f = 9), United Kingdom (f = 5), Australia (f = 5), Wisconsin (f = 4), New Zealand (f = 4); between the years 2010-2020, it was carried out frequently in Australia (f = 8), United States (f = 7), Texas (f = 6), United Kingdom (f = 6), Canada (f = 5).

The word clouds, which are examined periodically in terms of LS-in-LE of the countries where the studies were conducted between 1965-2020, are shown in Figure 37 below.

Figure 37. Periodic examination of the countries/places where the studies indexed in the ERIC database were conducted in terms of LS-in-LE

When Figure 37 is examined, it can be seen that the countries/places where LS-in-LE studies were carried out between 1965-2020 were found to be: United States (f = 21), Canada (f = 21), United Kingdom (f = 15), Australia (f = 15).), California (f = 12); Between 1965-2010 Canada (f = 14), United States (f = 10), United Kingdom (f = 7), United Kingdom (England) (f = 6), United Kingdom (Great Britain) (f = 3).

The word clouds, which are examined periodically in terms of LT-in-LE of the countries/places where the studies were carried out between 1965-2020, are shown in Figure 38 below.

Figure 38. Periodic analysis of the countries/places where the studies indexed in the ERIC database were conducted in terms of LT-in-LE

When Figure 38 is examined, it can be seen that the countries/places where LT-in-LE studies were conducted between 1965-2020 were found to be: United States (f = 23), California (f = 22), Texas (f = 17), United Kingdom (f = 16).), Australia (f = 15); United Kingdom (f = 8), Texas (f = 6), Indiana (f = 5), Wisconsin (f = 4), Canada (f = 4) between 1965-2010; It is seen that between the years 2010-2020, United States (f = 20), California (f = 19), Australia (f = 13), Texas (f = 11), Canada (f = 11).

In Figure 39, countries/places where studies on LE, LQ-in-LE and LS-in-LE were conducted between the years 1965-2020 are analyzed comparatively in terms of number and uniqueness.
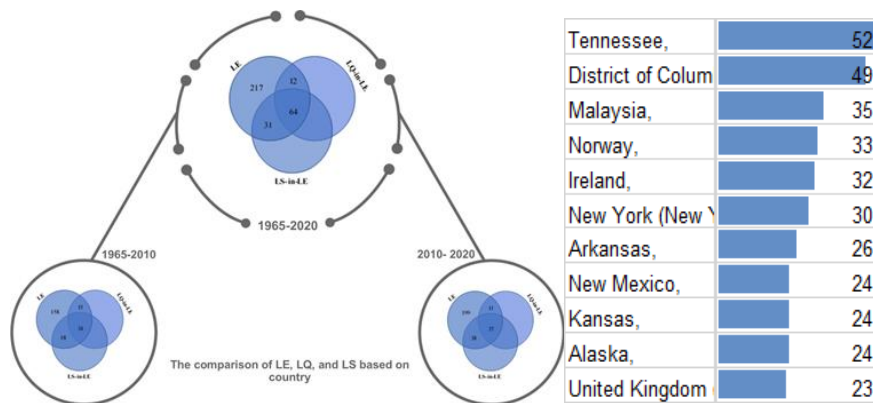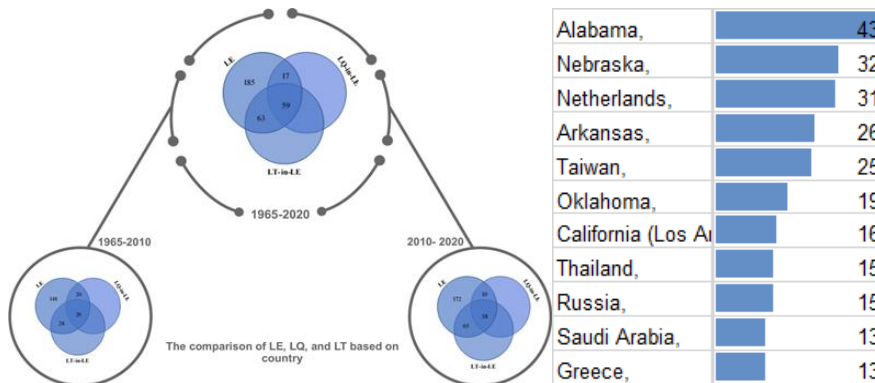

Figure 39. Word Distributions Common to Countries in Studies on LE, LQ and LS

As seen in Figure 39, it has been determined that LE (f = 217) was frequently used in Tennessee, the District of Columbia, Malaysia, Norway, and Ireland between 1965 and 2020. However, between 1965 and 2010, while (f = 158) words are unique for LE; between 2010 and 2020 (f=199) words are unique for LE. At the same time, it can be seen that there are no studies related to the unique use of the words LQ-in-LE and LS-in-LE in studies conducted between 1965-2020, between 1965-2010, and between 2010-2020. This finding has come to the fore as an indicator of how far the analyzed publications are separated from each other. In the graphic in Figure 40, the studies carried out in LE, LQ-in-LE, and LS-in-LE fields between 1965 and 2020 are given in comparison with the number of countries that are common.

Figure 40. Countries that are frequent partners (in 2) in the studies conducted in LE, LQ-in-LE, and LS-in-LE fields between 1965-2020

- LE & LQ-in-LE (zone 2) (f=12): Iowa, New Jersey, Utah, Nevada, Delaware
- LE & LS-in-LE (zone 4) (f=31): Sweden, Finland, Uganda, Nepal, Montana

Figure 41 shows the countries where the studies conducted in LE, LQ-in-LE, and LS-in-LE between 1965-2020 are common.

LE & LS-in-LE &	LE 1.bölge frekans	LQ-in-LE 3.bölge frek	LS-in-LE 7.bölge frek
California,	305	7	12
United States,	304	10	21
Australia,	291	13	15
Canada,	265	14	21
United Kingdom,	217	11	15
United Kingdom (	168	5	8
Texas,	161	10	11
North Carolina,	132	2	5
New York,	119	5	3
Florida,	112	2	4

Figure 41. The status of the countries that are frequent partners in the studies carried out in LE, LQ-in-LE, and LS-in-LE fields between 1965 and 2020

- LE & LQ-in-LE & LS-in-LE (zone 5) (f=64): California, United States, Australia, Canada, United Kingdom

In Figure 42, the countries where studies on LE, LQ-in-LE, and LT-in-LE were conducted between 1965-2020 are analyzed comparatively in terms of their number and uniqueness.

Alabama,	43
Nebraska,	32
Netherlands,	31
Arkansas,	26
Taiwan,	25
Oklahoma,	19
California (Los A	16
Thailand,	15
Russia,	15
Saudi Arabia,	13
Greece,	13

Figure 42. Non-Common Word Distributions by Country in Studies of LE, LQ, and LT

As seen in Figure 42, it has been determined that LE (f = 185), which was used between 1965 and 2020, was uniquely used in Alabama, Nebraska, Netherlands, Arkansas, and Taiwan. However, between the years 1965-2010 while (f = 148) words seem to be unique for LE; between 2010-2020 (f = 172) words are unique for LE. However, it is seen that there are no studies related to the unique use of the words LQ-in-LE and LT-in-LE in studies conducted between 1965-2020, between 1965-2010, and between 2010-2020. This finding has come to the fore as an indicator of how far the analyzed publications are separated from each other. In the graphic in Figure 43, the studies carried out in LE, LQ-in-LE, and LT-in-LE fields between 1965 and 2020 are given comparatively together with the number of countries that are common.
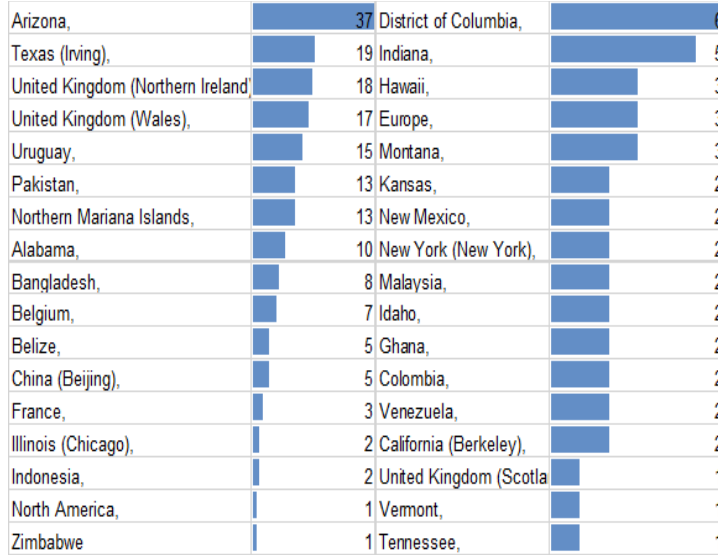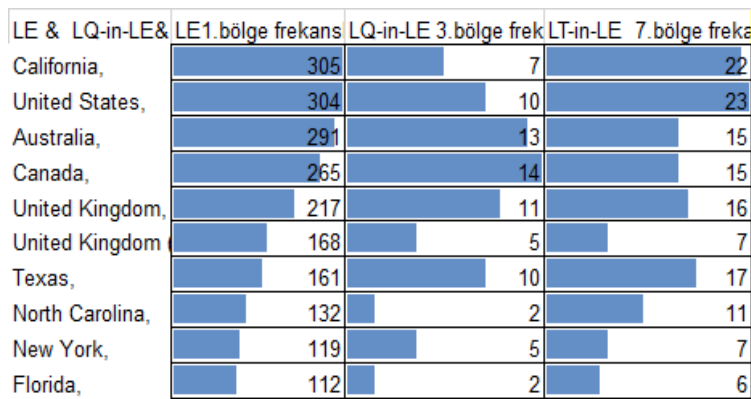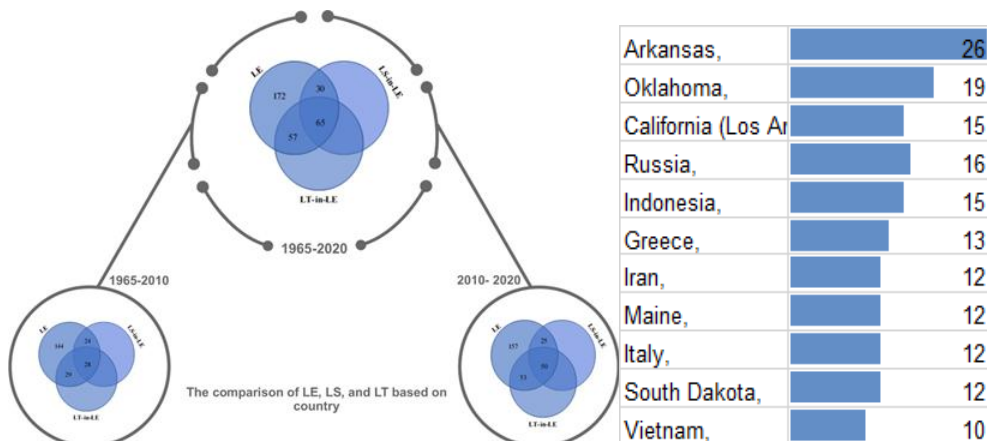
Arizona,	37	District of Columbia,	6
Texas (Irving),	19	Indiana,	5
United Kingdom (Northern Ireland)	18	Hawaii,	3
United Kingdom (Wales),	17	Europe,	3
Uruguay,	15	Montana,	3
Pakistan,	13	Kansas,	2
Northern Mariana Islands,	13	New Mexico,	2
Alabama,	10	New York (New York),	2
Bangladesh,	8	Malaysia,	2
Belgium,	7	Idaho,	2
Belize,	5	Ghana,	2
China (Beijing),	5	Colombia,	2
France,	3	Venezuela,	2
Illinois (Chicago),	2	California (Berkeley),	2
Indonesia,	2	United Kingdom (Scotla	1
North America,	1	Vermont,	1
Zimbabwe	1	Tennessee,	1

Figure 43. Countries that are frequent partners (in 2) in the studies carried out in LE, LQ-in-LE, and LT-in-LE fields between 1965-2020

● LE & LQ-in-LE (zone 2) (f=17): Arizona, Texas (Irving), United Kingdom (Northern Ireland), United Kingdom (Wales), Uruguay
● LE & LT-in-LE (zone 4) (f=63): District of Columbia, Indiana, Hawaii, Europe, Montana

Figure 44 shows the countries where the studies conducted in LE, LQ-in-LE, and LT-in-LE between 1965-2020 are common.

LE & LQ-in-LE&	LE 1.bölge frekans	LQ-in-LE 3.bölge frek	LT-in-LE 7.bölge freka
California,	305	7	22
United States,	304	10	23
Australia,	291	13	15
Canada,	265	14	15
United Kingdom,	217	11	16
United Kingdom (	168	5	7
Texas,	161	10	17
North Carolina,	132	2	11
New York,	119	5	7
Florida,	112	2	6

Figure 44. The status of the countries that are frequent partners in the studies carried out in LE, LQ-in-LE and LT-in-LE fields between 1965 and 2020

● LE & LQ-in-LE & LT-in-LE (f=59): California, United States, Australia, Canada, United Kingdom

In Figure 45, countries, where studies on LE, LS-in-LE, and LT-in-LE were conducted between 1965 and 2020, are analyzed comparatively in terms of their number and uniqueness.

Arkansas,	26
Oklahoma,	19
California (Los An	15
Russia,	16
Indonesia,	15
Greece,	13
Iran,	12
Maine,	12
Italy,	12
South Dakota,	12
Vietnam,	10

Figure 45. Non-Common Word Distributions by Country in Studies on LE, LS, and LT

As seen in Figure 45, it was determined that LE (f = 172), which was used between 1965 and 2020, was uniquely used in Arkansas, Oklahoma, California (Los Angeles), Russia, Indonesia. Along with that, between the years 1965-2010, while (f = 144) words are unique for LE; between 2010-2020 (f = 157) are unique for LE. However, it is seen that there are no studies related to the unique use of the words LS-in-LE and LT-in-LE in studies conducted between 1965-2020, between 1965-2010 and between 2010-2020. This finding has come to the fore as an indicator of how far the analyzed publications are separated from each other. In the graphic in Figure 46, the studies carried out in LE, LS-in-LE, and LT-in-LE fields between 1965 and 2020 are given in comparison with the number of countries that are common.

Alabama,	43	District of Columbia,	6
Arizona,	37	Utah,	4
Nebraska,	32	Hawaii,	3
Netherlands,	31	New Jersey,	3
Taiwan,	25	Kansas,	2
United Kingdom (Wales),	19	New Mexico,	2
Illinois (Chicago),	18	New York (New York)	2
North America,	17	Malaysia,	2
Thailand,	15	Idaho,	2
Belgium,	13	Colombia,	2
Saudi Arabia,	13	Iowa,	2
Wyoming,	10	California (Berkeley)	2
Pakistan,	9	United Kingdom (Sc	1
USSR,	9	Vermont,	1
France,	8	Tennessee,	1
Czech Republic,	6	Rhode Island (Provid	1
Zimbabwe,	5	Qatar,	1
Jamaica,	5	Poland,	1
Jordan,	5	Washington (Seattle	1
Bangladesh,	4	United Arab Emirate	1
China (Beijing),	4	United Kingdom (Lor	1
Nepal,	3	United Kingdom (Gla	1
Croatia,	3	Turkey (Istanbul),	1

Figure 46. Countries that are frequent partners (in 2) in the studies conducted in LE, LS-in-LE, and LT-in-LE fields between 1965-2020

● LE & LS-in-LE (zone 2) (f=30): Pakistan, North America, Nepal, Illinois (Chicago), Belgium
● LE & LT-in-LE (zone 4) (f=57): District of Columbia, Utah, Hawaii, New Jersey, Kansas

Figure 47 shows the countries where the studies conducted in LE, LS-in-LE, and LT-in-LE between 1965-2020 are common.

LE & LS-in-LE&	LE1.bölge frekanslar	LS-in-LE 3.bölge fre	LT-in-LE 7.bölge frek
California,	305	12	22
United States,	304	21	23
Australia,	291	15	15
Canada,	265	21	15
United Kingdom,	217	15	16
United Kingdom (	168	8	7
Texas,	161	11	17
North Carolina,	132	5	11
New York,	119	3	7
Florida,	112	4	6

Figure 47. The status of the countries that are frequent partners in the studies carried out in LE, LS-in-LE, and LT-in-LE fields between 1965-2020

● LE & LS-in-LE & LT-in-LE (zone 5) (f=65): California, United States, Australia, Canada, United Kingdom

In Figure 48, the countries where studies on LQ-in-LE, LS-in-LE, and LT-in-LE were conducted between 1965 and 2020 are analyzed comparatively in terms of their number and uniqueness.
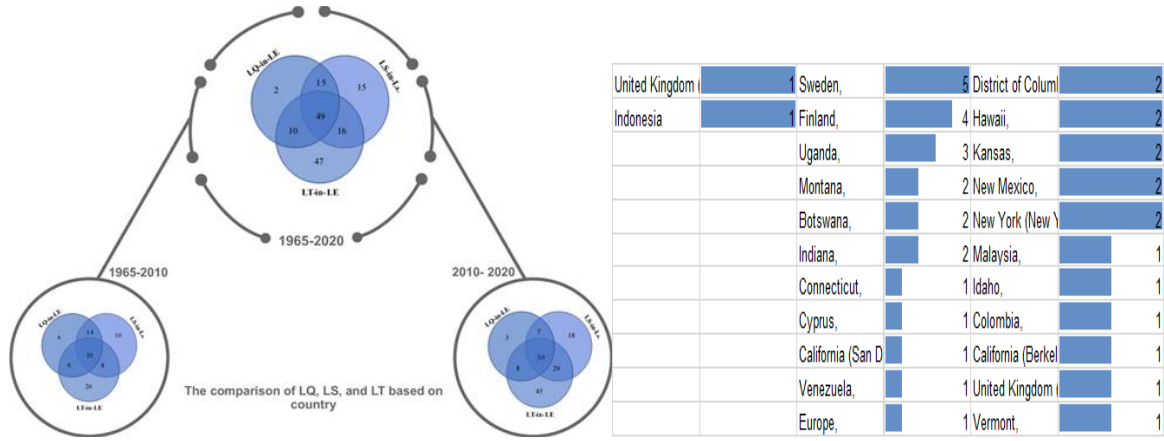
Figure 48. Non-Common Word Distributions by Country in Studies on LQ, LS, and LT

As seen in Figure 48, it has been determined that (f = 2) for LQ, which was used between 1965 and 2020, was uniquely used in the United Kingdom (Northern Ireland) and Indonesia. (f = 15) for LS-in-LE countries of Sweden, Finland, Uganda, Montana, and Botswana stand out; (f = 47) for LT-in-LE has been found to be used uniquely in the District of Columbia, Hawaii, Kansas, New Mexico, and New York. At the same time, between the years 1965-2010, while (f = 6) words for LQ, (f = 10) words for LS-in-LE and (f = 20) words for LT-in-LE was seen to be unique; between 2010 and 2020, (f = 3) words for LQ, (f = 18) words for LS-in-LE and (f=45) words for LT-in-LE were unique. This finding has come to the fore as an indicator of how far the analyzed publications are separated from each other. In the graphic in Figure 49, the studies carried out in LQ-in-LE, LS-in-LE, and LT-in-LE between 1965 and 2020 are given in comparison with the number of countries that are common.

Figure 49. Countries that are frequent partners (with 2) in the studies conducted in LQ-in-LE, LS-in-LE, and LT-in-LE between 1965-2020

- LQ-in-LE & LS-in-LE (zone 2) (f=15): Arizona, Texas (Irving), United Kingdom (Wales), Uruguay, Pakistan
- LQ-in-LE & LT-in-LE (zone 4) (f=10): New Jersey, Afghanistan, Turkey (Istanbul), Utah, New Hampshire
- LS-in-LE & LT-in-LE (zone 6) (f=16): Indiana, Europe, Montana, Ghana, Venezuela

In Figure 50, the countries where LQ-in-LE, LS-in-LE, and LT-in-LE between the years 1965-2020 are common in all three areas are shown.

LQ-in-LE & LS-in	LQ 1.bölge frekans	LS-in-LE 3.bölge	LT-in-LE 7.bölge freka
Canada,	14	21	15
Australia,	13	15	15
United Kingdom,	11	15	16
Texas,	10	11	17
United States,	10	21	23
New Zealand,	8	7	4
California,	7	12	22
New York,	5	3	7
Wisconsin,	5	2	6
United Kingdom (	5	8	7

Figure 50. The status of the countries that are frequent partners in the studies carried out in LQ-in-LE, LS-in-LE, and LT-in-LE between 1965-2020

- LQ-in-LE & LS-in-LE & LT-in-LE (zone 5) (f=49): Canada, Australia, United Kingdom, Texas, United States.

4. RESULTS, DISCUSSION AND RECOMMENDATIONS

Based on the 13258 publications in Eric database examined, it was seen that the number of studies conducted on LE, LQ-in-LE, LS-in-LE, and LT-in-LE decreased after 2010, and, in general, school, leader, learning, development, program, teacher, and principal terms came to the fore in the titles of the studies on leadership between 1965-2020. Also, it was observed that school, leader, development, learning, and teacher terms were constantly discussed in the studies for leadership since 1965; however, the words practice attracted attention especially after 2010. When examined in detail, the results showed that all LQ, LS and LT studies jointly searched for leader, school and principal terms up to 2010, while they mainly focused on learning and practice terms after 2010. These results show that practical issues for leadership get more attention in recent years. Looking at the places where the studies on leadership were carried out, it was seen in general that between 1965-2020, California, United States, Australia, Canada, United Kingdom, United Kingdom (England), Texas, North Carolina, New York, and Florida came to the fore. Besides, it was observed that Canada, Australia, United Kingdom, the United States, United Kingdom (England), California, and Texas were constantly used in the leadership studies up to 2010, while especially North Carolina and Florida attracted attention after 2010. Considering in detail, the results showed that LQ, LS and LT studies were jointly made in Canada, United Kingdom, Texas, Australia up to 2010, while they mainly focused on California and North Carolina after 2010. These results show that especially the United States provinces get more attention in recent years, although different places have been chosen earlier for leadership studies.

When the literature is examined, it is seen that there are similar studies with the conclusions of this study. For example, Samul (2020) examined 12.235 publications on leadership from the Web of Science database, covering the period from 1923 to 2019. In his study, which he handled with the method of scientometrics analysis in terms of seeing the trend in studies on leadership, the results he obtained showed that there is an increasing number of studies on leadership, and research topics related to leadership management, leadership performance, leadership models, leaders' behavior, leaders' personalities, and interrelated team leadership have been studied extensively. In addition, the results obtained in the study show a weakening interest in 'hard' aspects of leadership in a 'soft' direction.

Similarly, Hallinger and Kovačević (2019) examined 1039 articles on education leadership and management (EDLM) written in European continental societies between 1960 and 2018 and published in 22 journals. While the European corpus of 1,039 Scopus-indexed journal articles is less than half the size of the UK literature for the same period, it is roughly comparable to the size of the Asian literature and substantially larger than the literature from Africa and Latin America (Hallinger & Kovačević, 2019; Hallinger & Kulophas, 2019.

Moreover, the growth trajectory identified in this review portends a continued rapid growth of publications on EDLM from continental Europe in the coming decade. Kovačević and Hallinger (2020) analyzed 793 Scopus indexed documents on leadership and professional learning of teachers in K-12 schools between 1960 and 2018 with the aim of documenting intellectual progress over time, identifying key authors, identifying documents and institutions, and enlightening the intellectual structure of the field with a similar method with the variables of document author, journal, document citation and common citation. The results obtained initially show slow growth in the 1970s and 1980s, and then show that research continued to current time has significantly accelerated. In addition, it has been determined that the results obtained are related to three main research flows or schools of thought: teacher leadership of professional learning communities, basic leadership for teacher learning, shared leadership for teacher learning.

To sum up, when compared to this study, it is seen that it is similar to the focusing of related studies between 1965-2018, while there are differences in terms of examining previous years by using different databases such as Eric, Web of Science, Scopus and terms such as leadership and its derivative types. In this context, based on these similarities and differences, it can be claimed that the studies on leadership including this one show that the scientometrics studies jointly focus on the studies published in especially global scaled academic databases between 1965-2018, and although the sub-problems change, they reveal that there is a tendency for leadership in which research utilize derivative leadership terms rather than approaching leadership under a single roof. This result exposes that many new leadership terms will be derived in future years. Furthermore, the studies including this one show that especially teachers' leadership, practical issues, leadership performance get more attention recently. This means that leadership matters not just only for administrators but also for teachers, and that practical and performance-based studies are inevitable no longer rather than defining leadership studies in a superficial literature review.

In this direction, due to the fact that the concept of leadership is a term that cannot be separated from the nature of management, its importance manifests itself in all areas and the studies related to scientometrics are increasing, it may be suggested to make new studies by including different databases, comparing different year intervals and participating in different fields. Furthermore, it is suggested that future studies should focus on national databases, practical issues, and different countries.

Research and Publication Ethics Statement

This study does not require any ethics committee approval as it includes a review of open-source databases.

Contribution Rates of Authors to the Article

The first author as corresponding one contributed to all the parts of the study which included the introduction and literature, findings, results, discussion, recommendations parts. The second author contributed to the introduction, findings and discussion parts. The third author contributed to the methodology and data analysis parts.

Statement of Interest

There was no conflict of interest.

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