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The Trend of Differentiated Instruction Research: Bibliometric and Content Analysis

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Abstract

Unquestionably, one of the primary purposes of education in societies with several facets is to ensure that each individual participates in life in harmony and contributes to society. Ignoring the adaptability of society also causes this variety to deteriorate into a disadvantage. In this situation, it is crucial to consider the unique differences of the students, keeping the students' personal interests and needs in the foreground for the sake of social adaptation and individual growth. Consequently, the objective of differentiated instruction is to reduce these challenges for the instructor, students, and other stakeholders by offering learning opportunities to all students in a maximum level. Examining the studies on differentiated instruction, the significance of which is steadily growing today, the purpose of this study is to determine the subject's current trends and to establish a broad framework. To this end, the bibliometric method and the document analysis method were applied to the assessments of scientific research published in the Web of Science, YOK Thesis, Sobiad, DergiPark, and TR Index databases on a total of 1,222 diverse instructional themes. The presentation of findings is presented with bibliometric maps, tables, graphs, and figures. According to the results of an analysis of the publications in the Web of Science database, the majority of research was published in 2019 and the majority of citations were produced in 2021. In accordance with the study findings, the dimensions findings were analyzed in light of the related literature, and ideas for further research were provided.

Keywords: Bibliometric analysis, Content analysis, Differentiated instruction, Literature-based review, VOS viewer.

Article Type:

Literature review

Acknowledge:

This study was produced from the master's thesis of the first author.

Ethics Declaration:

In this study, all the rules stated to be followed within the scope of the "Higher Education Institutions Scientific Research and Publication Ethics Directive" were followed.

Farklılaştırılmıs Ögretim Araştırmalarının Eğilimi: Bibliyometrik ve İçerik Analizi

Öz

Toplumların eğitim ile ilgili temel amaçlardan biri şüphesiz ki her bireyin uyum içerisinde hayata katılmasına ve topluma katkıda bulunmasını saglamaktır. Toplumun çok yönlülüğünün göz ardı edilmesi de bu çeşitliliğin dezavantaja dönüşmesine sebep olmaktadır. Bu durumda öğrencilerin bireysel farklılıklarının gözetilmesi, öğrencilerin kendi ilgi ve ihtiyaçlarının ön planda tutulması bireyin topluma uyumu ve bireysel gelişimi adına oldukça önemlidir. Buna yönelik olarak farklılaştırılmış öğretimin amacı ise tüm öğrencilere maksimum düzeyde öğrenme fırsatı sunarak öğretmen, öğrenciler ve diğer paydaşlar için bu zorlukları ortadan kaldırmaktır. Bu çalışma ile günümüzde önemi giderek artan farklılaştırılmış öğretim hakkında yapılan çalışmaları inceleyerek konu ile ilgili eğilimleri belirlemek ve genel bir çerçeve oluşturmak amaçlanmaktadır. Bu amaçla Web of Science, YÖK Tez, Sobiad, DergiPark ve TR Dizin veri tabanlarında yayımlanan toplam 1,222 farklılaştırılmış öğretim konulu bilimsel araştırmaların incelemelerinde, bibliyometrik yöntem ve doküman analiz yönteminden yararlanılmıştır. Bulgulara göre en çok atıf yapılan anahtar kelimeler sırasıyla farklılaştırılmış öğretim, ortaöğretim, kaynaştırma, öğretmenler/öğretmen adayları, ilköğretim şeklindedir. Bahsedilen veri tabanlarında 1981-2021 yılları arasında farklılaştırılmış öğretim konulu çalışmaların araştırma eğilimlerinin tespit edilmesi amaçlanmıştır. Web of Science veri tabanındaki makalelerin çözümlenmesinden elde edilen bulgulara göre 1981 yılından bu yana, en fazla 2019 yılında çalışmanın yayımlandığı, en fazla atıfın 2021 yılında yapıldığı tespit edilmiştir. Farklılaştırılmış öğretim konusunda en sık nicel yöntem, yarı deneysel desen, tutum ve algı testlerinin sıklıkla kullanıldığı tespit edilmiştir. Araştırma sonuçları doğrultusunda boyutlarla ilgili bulgular ilgili alan yazın ışığında tartışılmıştır ve ileriki araştırmalara yönelik bazı öneriler sunulmuştur.

Anahtar Kelimeler: Bibliyometrik analiz, Doküman analizi, Farklılaştırılmış öğretim, İçerik analizi, VOSviewer.

Introduction

Different types of students study reasonably well in contemporary educational settings. Despite the fact that this difference enriches the learning environment, it also causes some difficulties. Differentiated instruction, which is based on the differences among students in the same learning environment, is a constructivist method for addressing these challenges (Good, 2006; Gregory & Chapman, 2020). Differentiated instruction is the learning and teaching process that considers these differences within the same environment. This method is predicated on the creation of a learning environment that allows students to work at their own pace and where they can actively participate and apply what they have learned (Anderson, 2007; Hall et al, 2002).

Currently, the constant evolution and advancement of science and technology have had an impact on social life and its requirements. This evolution and change have prompted the individual to modify and diversify his expectations. As societal expectations of the individual change, so does the impact of education on the individual. In this sense, the education that will meet the needs of the present should be a reflection of the contemporary world (Bender & Waller, 2011). Tomlinson (1999a) was the first to propose differentiated instruction, which places the student at the center by recognizing their individual differences. This strategy aims to provide instructional design diversity by placing students at the center (Oliva, 2005; George, 2005). The significance of differentiated education in educating individuals in need of the development and change brought about decisively by science and technology cannot be ignored. Initially used only for the education of exceptionally gifted students, differentiated instruction was later implemented in regular classrooms (Chen, 2007; Ricciardi et al., 2020; Sak, 2011; Vantassel-Baska et al., 2020). While differentiated teaching began to form conceptually in the 1960s, groupings according to general differences began in the 1980s. In the 21st century, groupings began to be made in an objective way according to individual differences. (Ankrum et al., 2007).

Each individual has a distinct mode of academic achievement (Fiore & Cook, 1994; McGarvey, et al., 1997). According to Demos and Foshay (2009), each student's learning and expression are distinctive. Differentiated instruction is the belief that education should account for the differences among students in the same learning environment (Bush, 2006; Hall, Meyer & Strangman, 2010). According to this view, differentiated instruction encompasses various strategies and methods designed to meet the diverse learning needs of students in each learning environment (Ericson, 2010). It is believed that differentiated education contributes to students' individual development and provides a quality education (Lawrence-Brown, 2004). Differentiated instruction is crucial for achieving the expected educational outcomes (Roberts & Inman, 2007). From the past to the present, numerous studies have been conducted on differentiated instruction that focuses on the interests, readiness, and abilities of individuals. This study is a crucial aspect of our daily classroom training in the discipline of increasingly differentiated instruction and studies on the significance of scanning national and international databases. With this work, bibliometric and content analyses of a total of 1,222 studies were conducted, and numerous research trends were uncovered. The scientific presentation of this topic's research frameworks is considered essential, which contributes to the acquisition of 21st-century skills and individual differences-based instruction.

Obviously, it was difficult to select and utilize decommissioned information from the vast amounts of information that have been generated in the past. The study's nature can be inferred from the number of citations it has received today when it was important and difficult to access holistic information from the vast amount of available data. In this sense, the general tendency was that, when conducting research on a topic, the selection is made from the vast amount of information in the literature, with the number of citations taken into account (Van Eck & Waltman, 2010). Numerous independent studies were being conducted in an area that is gaining importance today, such as differentiated instruction. The studies conducted were incredibly important, but the classification of these studies was also crucial for assessing trends and determining implications. The high number of studies in a particular field also presents some challenges. If there were too many related studies, it may be difficult for the researcher to access all sources (Goktas et al., 2012). In general, it was believed that gathering the field's studies under one roof will facilitate future research. In this regard, it is essential to categorize the research, determine the distributions and inferences, and assess the trends. It was believed to be essential to provide a general framework for the studies contained in the literature, thereby facilitating future research and serving as a source of new ideas.

There is a need for bibliometric analysis of differentiated instruction from the past to the present based on citation values in international databases. In addition, comprehensive data will be obtained by analyzing the content of a national field article on differentiated instruction. In this sense, it was believed that the research trends and content of the differentiated instruction subject will contribute to the scientific method literature through bibliometric and content analysis. This study aims to examine the research trends of studies on differentiated instruction in national and international writing fields. The main problem of this research is to examine the trend of research on differentiated instruction. The sub-objectives are listed below.

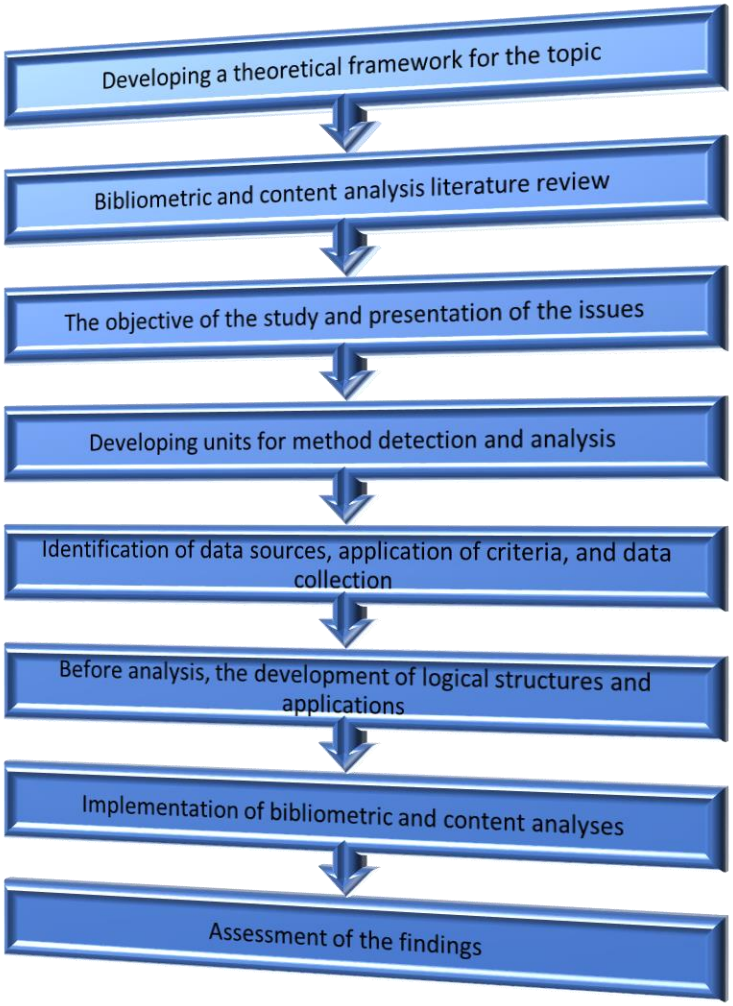
1. How are the trends of scientific studies conducted on differentiated instruction in the Web of Science (WOS)?
2. What is the trend of scientific research conducted on differentiated instruction in national databases (YOK Thesis, Sobiad, DergiPark and TR Index)?

Using bibliometric and content analyses, this study will investigate national and international research trends in differentiated instruction. This study aims to serve as a guiding and fundamental resource for research on differentiated instruction, a well-established and effective teaching method. Examining the studies from the past to the present in directories and databases is intended to create a comprehensive framework for the studies conducted in the field.

Method

In this study, quantitative and qualitative approaches were used to examine the studies conducted on differentiated instruction. In the research, a quantitative bibliometric technique and a qualitative document analysis technique were employed. Quantitative and qualitative analyses of the research trends on differentiated instruction have been conducted. In this study, which employs the bibliometric method and document analysis method, historical research trends and the current state of differentiated instruction are examined. The current definition of bibliometric analysis is the statistical comparison of parameters such as subject, author, and citation of scientific studies (Al & Tonta, 2004). The bibliometric analysis statistically examines the collected data and provides the reader with its narrative. The parameters contained in scientific publications on a particular topic are analyzed by pouring quantitative data into bibliometry. The other method utilized in this study is document analysis, a thorough examination of written sources when observation and in-depth interviews about the subject are unlikely (Guclu Nergiz, 2014). Figure 1 provides details on the research procedure.

Figure 1.
Stages of the research process



Collection of Data

For bibliometric analysis, 1067 articles on differentiated instruction from the WOS database were selected for this study. In addition to this database, the content analysis included 155

differentiated instruction-related articles and dissertations from the Sobiad (Social Science Research Association), TR Index, Dergipark, and YOK Dissertation databases. Table 1 provides information about the articles and theses used in the research.

Table 1.
Articles and dissertations included in the research scope

		Sources of Data Collection	Type of Publication	Number of Studies	Index	Years
Research Question 1	What is the trend in scientific research on differentiated instruction in the international field literature?	• WOS	Article	1067	SSCI, SCI, AHCI and ESCI	1981-2021
Research Question 2	What are the research trends in the national literature on differentiated instruction?	• Sobiad • TR Dizin • Dergipark	Article	76	National indexes	2009-2021
		• YOK Thesis	Thesis	79	International indexes	2006-2021
	Total number of publications			1,222		

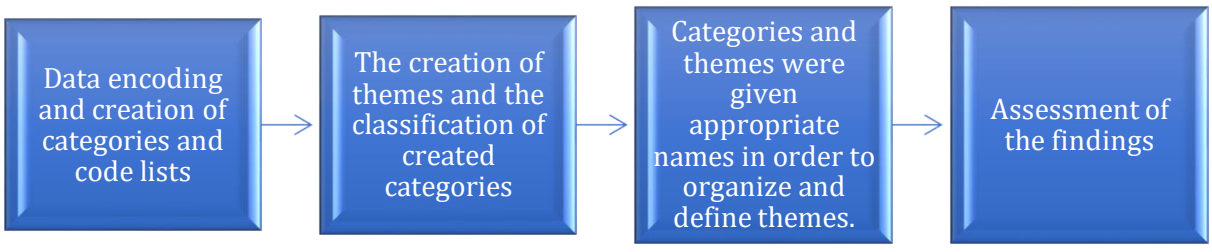
As shown in Table 1, the study included a total of 1,222 differentiated instruction publications for bibliometric and content analysis. While articles published between 1981 and 2021 served as the basis for bibliometric analysis, theses and articles published between 2006 and 2021 served as the foundation for content analysis.

Analysis of the Data

Content Analysis

Descriptive analysis is the interpretation of similar data by combining them under certain themes and concepts (Yıldırım & Simsek, 2018). In addition, content analysis can also be expressed as a research technique that uses data from the data to draw reproducible and valid conclusions about its content. According to Strauss and Corbin (1990), content analysis is the summary of the written information, written contents, and messages at hand. Figure 2 shows the stages of content analysis.

Figure 2.
Content analysis stages



In this study, publications included in the content analysis were extracted from the YOK Thesis, TR Index, DergiPark, and Sobiad databases and analyzed in accordance with the aforementioned steps.

Bibliometric Analysis

Examining the quality and quantity of academic studies related to a branch of science was crucial for evaluating various aspects of the subject under consideration (Law & Cheung, 2008). In the study, bibliometric analysis was used to examine research trends in the literature of the relevant field. With the expansion and dissemination of databases, bibliometric analysis, which was a very old method, has become widespread (Zupic & Čater, 2015). This method also allows researchers to conduct a more objective literature review and screen a large area. This increases the dominance of other researchers in the field and clarifies the publication policy (Zupic & Čater, 2015).

Findings

The publication languages of the 1067 WOS data-based studies included in the research were examined. The majority of the 1067 differentiated instruction (DI) studies were written in English (N=1644) and German (N=42). The languages English and German were followed by Spanish (N=25), Russian (N=11), French (N=9), Portuguese (N=6), Chinese (N=5), Norwegian (N=3), Turkish (N=3), Dutch (N=2), Polish (N=2), Serbian (N=2), Croatia (N=1), Czech (N= 1), Estonian (N=1), and Slovenian (N=1).

Figure 3.

The number of publications and citation values of DI articles by year

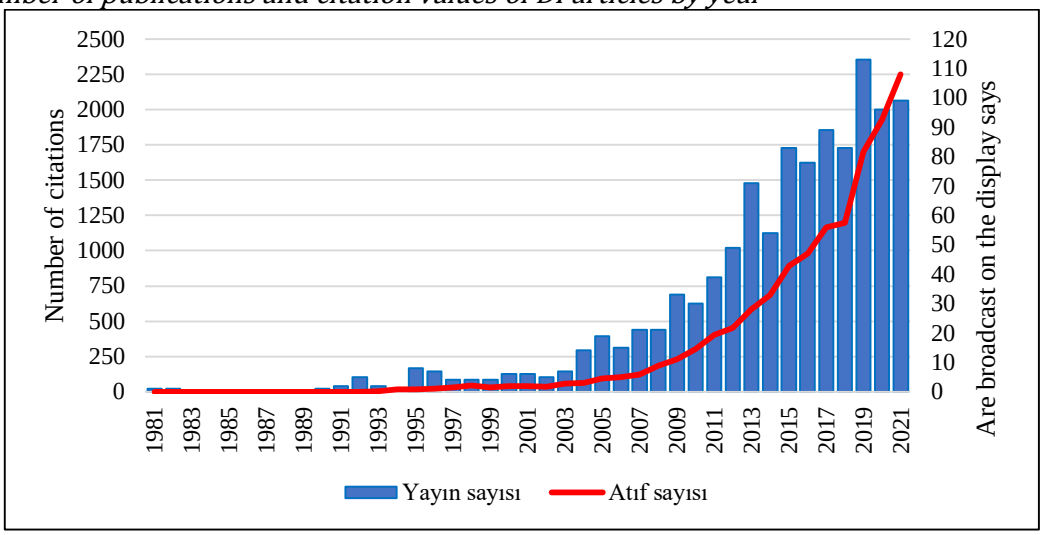
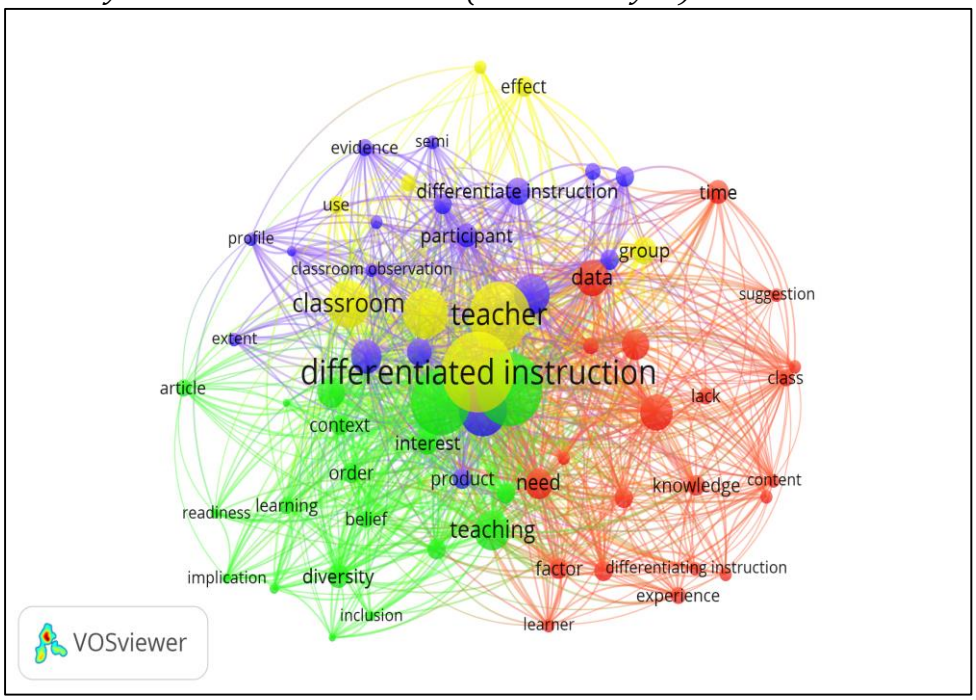


Figure 3 depicts the citation values of DI articles in WOS according to year and the number of studies. Figure 3 demonstrates that the first DI article was published in 1981. 2019 has the greatest quantity of DI articles (N=113, Citations=1700). 2021 saw the highest number of citations (N=99, Citation=2251). Within the scope of the study, the most frequently used keywords in the articles examined were analyzed. The minimum number of keyword repetitions is set to 2, and the VOSviewer software tool generated 154 keywords.

Figure 4.
The most commonly used words in the abstract (citation analysis)



The most frequently cited words in the abstract sections were determined using Citation Analysis. Figure 4 depicts the scientific network maps of the most frequently cited words in the abstract. The most frequently used keywords in the abstract, according to the scientific network map, were differentiated instruction, study, student, teacher, instruction, and practice. The number of citations received by the articles included in the scope of the research was examined. The most frequently used keywords in the articles are listed in Table 2.

Table 2.
The top 10 most common keywords in articles

Keyword	*F*	Keyword	*F*
Differentiated Instruction	35	Primary Education	3
Differentiation	4	Cognitive Task Analysis	2
Secondary Education	4	Content	2
Inclusion	4	Service Teacher Education	2
Pre-Service Teachers	3	Inclusive Education	2

Differentiated instruction (N=35), differentiation (N=4), secondary education (N=13), inclusion (N=4), teachers (preservice teachers) (N=3), and primary education (N=3) were the most frequently cited keywords in Table 2. The citations received by the authors of the articles included in the scope of the research provide us with clues about the nature of the articles. Citation Analysis was conducted to determine the most-cited authors. The most frequently cited authors are detailed in Table 3.

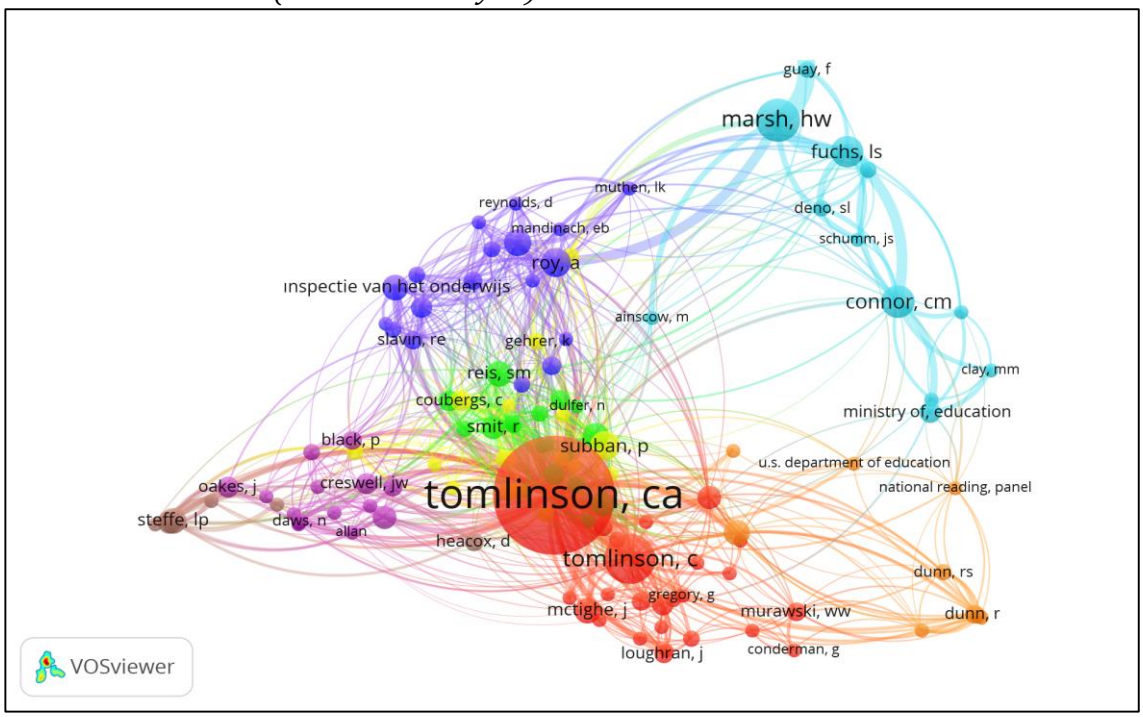
Table 3.
The most cited authors citation analysis

Author	Number of documents	Citations
Struyven	4	39
Coubergs	2	36
Engels	2	36
Valiandes	1	33
Vanthourmout	1	33

According to the results of the Citation Analysis, the authors with the most citations were identified. According to citation analysis, Struyve (Documents=4, Citations=39), Coubergs (Documents=2, Citations=36), Engels (Documents=2, Citations=36), Valiandes (Documents=1, Citations=33), and Vanthourmout (Documents=1, Citations=33) were the authors with the most citations.

Figure 5.

The most cited authors (co-citation analysis)



The most cited authors were subjected to a co-citation analysis. Figure 5 depicts the Co-citation analysis scientific network map. Tomlinson is the author who has done the most work on differentiated instruction. Table 4 includes a detailed list of the most cited authors.

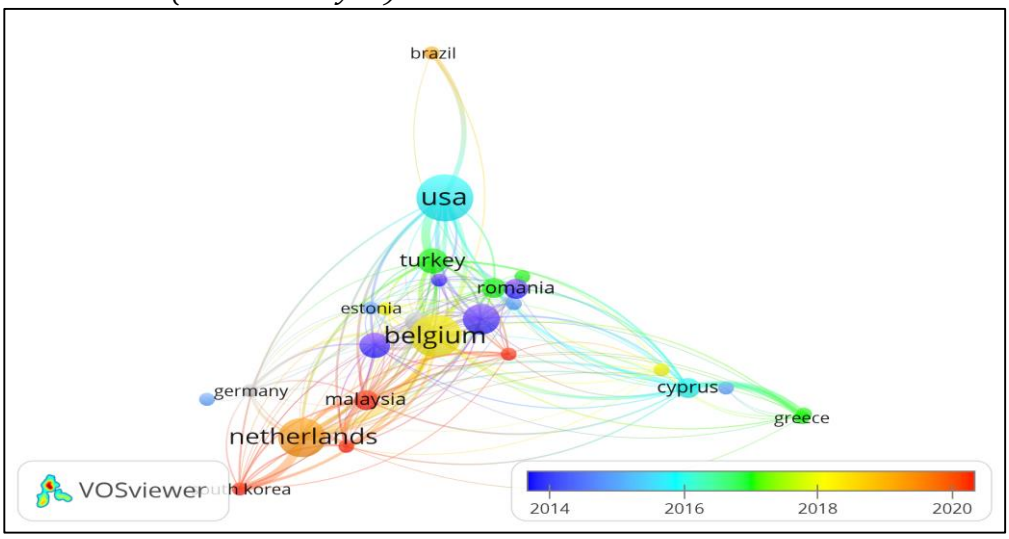
Table 4.

Most cited authors common citation analysis

Author	Country/ Region	Citations
Tomlinson	ABD	128
OECD	ABD	12
Subban	Avustralya	11
Valiandes	Lefkios	9
Mctighe	ABD	9
Hall	ABD	9
Roy	Kanada	9
Van de Grift	Netherlands	8

According to the results of the Co-citation Analysis, Tomlinson (128 Citations), Slavin (17 Citations), OECD (12 Citations), Subban (11 Citations), Roy (9 Citations), Valiandes (9 Citations), Hall (9 Citations), and Mctighe (9 Citations) were the authors with the most citations (9 Citations). The most cited countries are given in Table 6.

Figure 6.
The most cited countries (citation analysis)



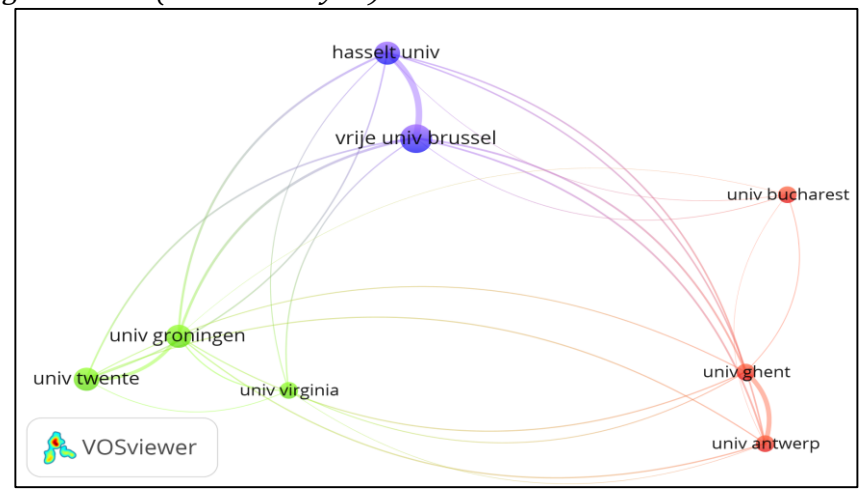
The citation analyses according to the countries of the studies included in the scope of the research were examined. The results of the citation analysis by country are presented in Table 5. Citation Analysis (Citation Understanding) was performed to identify the countries most frequently cited in the DI articles of WOS. In the VOSviewer program, the minimum number of source documents was set to 1, and the minimum number of citations for a country was also set to 1. Figure 6 depicts the Citation Analysis by country scientific network map.

Table 5.
The number of publications and citation values of the most cited countries

Country	Document	Citations	Country	Document	Citations
USA	8	67	Kosovo	1	6
Belgium	7	67	South Korea	1	6
Netherlands	6	42	Brazil	1	5
Cyprus	2	40	Taiwan	1	4
Canada	3	26	Czech Republic	1	3
Romania	2	10	Germany	1	2
Turkey	3	8	Malaysia	2	2
Romania	2	10	Brunei	1	1
New Zealand	1	7	China	4	1
Singapore	1	7	Saudi Arabia	1	1
Greece	1	7			

The United States, which has the most documents (N=8), has the same number of citations as Belgium (N=67), according to Table 5. The articles included in the scope of the research were examined according to the cited institutions. A citation analysis was conducted to determine the most frequently cited institutions. Figure 7 depicts the scientific network diagrams of the most-cited institutions.

Figure 7.
The most cited organizations (citation analysis)



The detailed results of the analysis of the most cited institutions were provided in Table 6. Citation analysis revealed that the most quoted organizations were VRIJE University (Citations=39, Documents=4), University of Virginia (Citations=57, Documents = 2), Groningen University (Citations=28, Documents=3), and Ghent University (Citations=23, Documents=2).

Table 6.
The most cited institution citation analysis

University	Citations	Documents
VRIJE University	39	4
Virginia University	57	2
Groningen University	28	3
Ghent University	23	2

Citation analysis was performed to determine the most cited journals. The minimum number of citations of VOS viewer's common citation resource options was listed as 9 for the most cited journals, and as a result, bibliometric mapping was created for 27 journals. Figure 8 depicts the scientific network map created for the most cited journals.

Figure 8.
The most cited journals (co-citation analysis)

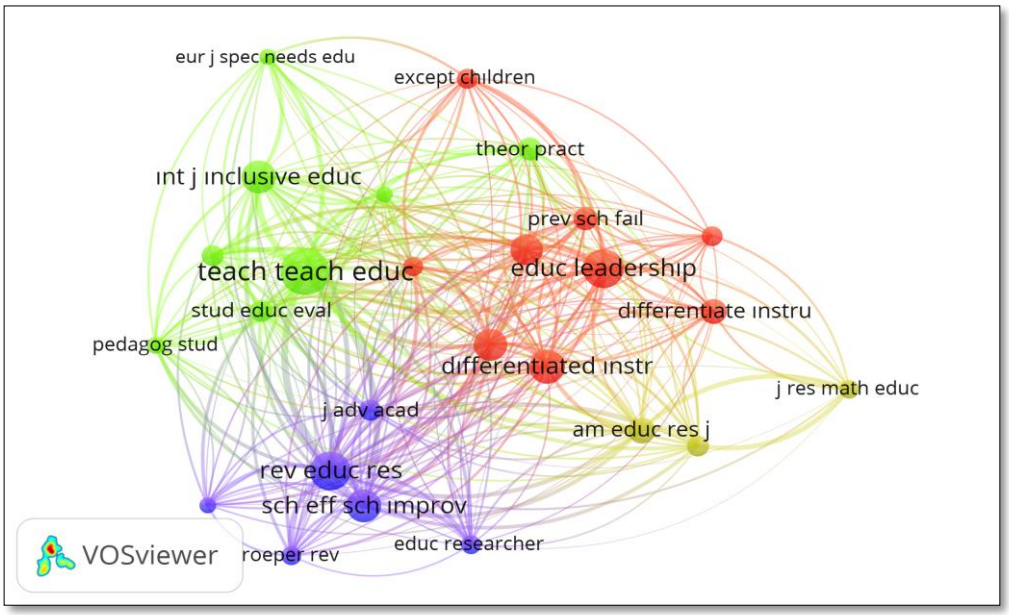


Table 7.
The most cited journals citation analysis

Journals	*Citations*
Teaching and Teacher Education	53
Review of Educational Research	39
Educational Leadership	38
International Journal of Inclusive Education	29
School Effectiveness and Schooll Improvement	30
Journal Education Gifted	26

According to Table 7, the most cited Teaching and Teacher Education Journals (Citations=53), Review of Educational Research (Citations=39), Educational Leadership (Citations=38), International Journal of Inclusive Education (Citations=29), School Effectiveness and School Development (Citations=30), and Journal of Gifted Education (Citations=26). Citation Analysis was performed to determine the abstract sections' most frequently cited terms. The analysis results are presented in detail in Table 8.

Table 8.
The most cited words citation analysis

Keys	*F*	*Keys*	*F*
Differentiated Instruction	34	School	13
Study	31	Teaching	13
Student	27	Need	12
Teacher	26	Data	12
Instruction	20	Analysis	11
Practice	19	Difference	10
Classroom	16	Strategy	10

According to the scientific network map, the keywords differentiated instruction, study, student, teacher, teaching, and practical appear most frequently in abstracts. 155 DI-related thesis and articles published between 2006 and 2019 were decoded using content analysis. These studies were retrieved from the databases Sobiad, YOK Thesis, Dergipark, and TR Index. These published studies were analyzed according to publication type, publication year, objective, methodology, working group, and data collection tools. Figure 9 depicts the types of publications analyzed by content analysis.

Figure 9.
Types of publications subject to content analysis

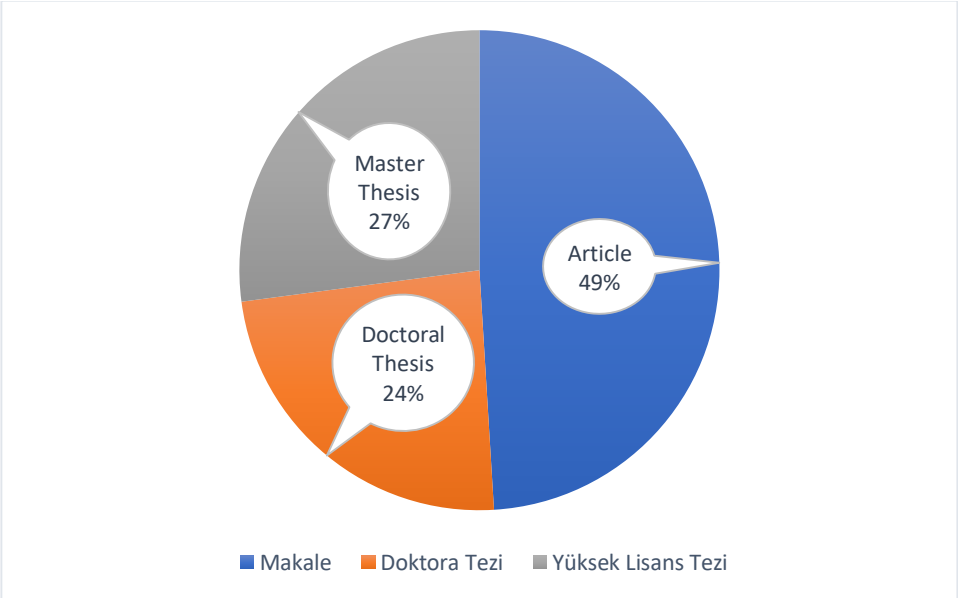


Figure 9 reveals that 49% of DI research papers with content analysis were articles, 24% were doctoral dissertations, and 27% were master's theses. The types of research publications for which content analysis was conducted are detailed in Table 9.

Table 9.

Distribution of the studies included in the study according to the types of publications.

Type of Publication	Databases	Years of publication	*F*	Total	%
Article	Sobiad, Dergipark, TR Index	2009-2021	76	76	49
Doctoral Thesis	YOK Thesis	2006-2021	37		51
Master Thesis	YOK Thesis	2008-2021	42	79	
Total			155	155	100

Examining Table 9 yielded a total of 155 studies, including 76 articles, 37 doctoral theses, and 42 master's theses published between 2006 and 2021 that fit the research's limitations and were found in the relevant databases. In these studies, the ratio of thesis studies is 51% (N=79), making them the most prevalent. The YOK Thesis database contains a greater number of master's theses than doctoral theses, as determined by a detailed examination of thesis studies. The distribution of publication years based on the types of studies included in the study is presented in detail in Table 10.

Table 10.

Distribution of the studies included in the research by december

Years	Thesis		Article		Total	
	N	%	*N*	%	*N*	%
2006-2009	2	3	1	1	3	2
2010-2013	12	15	4	5	16	10
2014-2017	22	28	22	29	44	28
2018-2021	43	54	49	65	93	60
Total	79	100	76	100	155	100

In Table 10, the publication years of DI-related studies were categorized under four headings: 2006-2009, 2010-2013, 2014-2017, and 2018-2021. Based on these decrees, it was determined that the studies conducted between 2018-2021 had the highest study rate (N=93) with 60%. . The distribution of theses included in the study by the university is presented in detail in Table 11.

Table 11.

The distribution of theses included in the research based on universities

Name of The University	*F*	%	Theses
Ataturk University	8	12	T18, T23, T37, T39, T43, T47, T50, T52
Bahcesehir University	8	12	T2, T4, T16, T17, T27, T38, T40, T51
İstanbul University	7	9	T58, T61, T69, T70, T71, T72, T73
Gazi University	4	5	T48, T54, T60, T66
Orta Dogu Technique University	4	5	T30, T36, T65, T78
Yıldız Technique University	4	5	T12, T24, T49, T57
Eskisehir Anatolia University	3	4	T26, T29, T33
Bursa Uludag University	3	4	T6, T8, T32
Hacettepe University	3	4	T13, T53, T64
Erciyes University	3	4	T1, T3, T19

Necmettin Erbakan University	3	4	T20, T35, T42
Akdeniz University	2	3	T9, T44
Balıkesir University	2	3	T11, T77
Ankara University	2	3	T41, T68
İnonu University	2	3	T46, T63
Abant İzzet Baysal University	2	3	T62, T74
Trabzon University	2	3	T21, T28
Cukurova University	2	3	T15, T76
Kırıkkale University	2	3	T5, T34
Maltepe University	1	1	T7, T31
Eskisehir Osmangazi University	1	1	T10
19 Mayıs University	1	1	T14
Ege University	1	1	T22
Dokuz Eylul University	1	1	T25
Cumhuriyet University	1	1	T45
Karadeniz Technique University	1	1	T55
Amasya University	1	1	T 56
Marmara University	1	1	T59
Bogazici University	1	1	T67
Okan University	1	1	T75
Van Yuzuncu Yıl University	1	1	T79
Total	79	100	

Examining Table 11 reveals that Bahcesehir University and Atatrk University were the institutions that have published the most dissertations on DI. Ataturk University published 12% (N=8) of the subject's thesis studies (N=8), while Bahcesehir University published 12% (N=8). Ataturk University and Bahcesehir University were the universities where the most differentiated instruction theses have been published, according to observations. Moreover, after Ataturk and Bahcesehir Universities, the universities with the highest ratio were Istanbul (N=7), Gazi (B=4), METU (N=4), and Yıldız Technical (N=4) Universities, in that order. The distribution of the research articles according to the journals in which they were published is presented in Table 12.

Table 12.

Distribution of the research articles to journals

Published Journals	*F*	%	Articles
European Journal of Educational Research	4	5	M52, M59, M64, M74
Sakarya University Journal of Education	4	5	M30, M31, M33, M41
Journal of National Education	3	4	M21, M29, M34
Kastamonu Journal of Education	3	4	M6, M13, M18
Hasan Ali Yucel Faculty of Education Journal	3	4	M7, M14, M17
Journal of Education of the Gifted and Creativity	3	4	M11, M12, M22
Ahi Evran University Faculty of Education Journal	2	3	M2, M3
International Journal of Social Sciences Research	2	3	M5, M57
Trakya University Faculty of Education Journal	2	3	M26, M28

Journal of English teaching research	2	3	M35, M36
Hacettepe University Faculty of Education Journal	1	1	M1
Mehmet Akif Ersoy University Faculty of Education Journal	1	1	M4
Ufuk University Journal of Social Sciences	1	1	M8
Bulletin of the Transylvania University of Brasov	1	1	M9
Bartin University Faculty of Education Journal	1	1	M10
Pegem Journal of Education and Training	1	1	M15
Educational Sciences in Theory and Practice	1	1	M16
Mersin University Faculty of Education Journal	1	1	M19
International Journal of Educational Sciences	1	1	M20
Caucasian Journal of Educational Research	1	1	M23
Journal of Education and Practice	1	1	M24
Turkish Journal of Educational Sciences	1	1	M25
Journal of Scientific Harmony,	1	1	M49
Turkish Journal of Superior Intelligence and Education	1	1	M27
Inonu University Faculty of Education Journal	1	1	M32
Journal of Educational Sciences Research in Turkey	1	1	M37
Journal of Qualitative Research in Education	1	1	M38
Cyprus Journal of Educational Sciences	1	1	M39
Erzincan University Faculty of Education Journal	1	1	M40
Kirsehir Ahi Evran University Journal of Health Sciences	1	1	M42
Idil Art and Language Magazine	1	1	M43
South African Journal of Education	1	1	M44
Cumhuriyet International Journal of Education	1	1	M45
International Journal of Social Mentality and Investigative Thinkers	1	1	M46
Journal of Education and Science	1	1	M47
Anemon Mus Alparslan University Journal of Social Sciences	1	1	M48
Trakya University Journal of Social Sciences	1	1	M50
Necatibey Faculty of Education Electronic Journal of Science and Mathematics Education	1	1	M51
Journal of African Educational Research	1	1	M53
Primary Education Online Magazine	1	1	M55
Asian Teaching Journal	1	1	M56
YYU Faculty of Education Journal	1	1	M54

Eurasian Journal of International Studies	1	1	M58
Ankara University Faculty of Educational Sciences Journal of Special Education	1	1	T60
Journal of Individual Differences in Education	1	1	M61
Eurasian Journal of Applied Linguistics	1	1	M62
International Journal of Education	1	1	M63
International Journal of 3D Printing Technologies and Digital Industry	1	1	M65
Primary Education Online Magazine	1	1	M66
Journal of Participatory Educational Research	1	1	M67
International Journal of Teacher Education Research	1	1	M68
Journal of Education of Gifted Young Scientists	1	1	M69
Journal of Educational and Humanitarian Sciences	1	1	M70
Turkish Journal of Educational Sciences	1	1	M71
International Science Education	1	1	M72
Journal of Higher Education and Science	1	1	M73
International Journal of Community Studies	1	1	M75
Ekev Academy Journal	1	1	M76
Total	76	100	76

Examining Table 12, it was discovered that European Educational Research (N=4) and Sakarya University (N=4) Journals published the greatest number of DI-related article studies. European Journal of Educational Research publishes journals and university magazines with for the most part articles from the following journals: International Journal of Education (N=3), Kastamonu Education Journal, (N=3) Hasan Ali Yucel the Journal of Education (N=3), and the Journal of gifted education and creativity (N=3). The distribution of included studies according to their objectives is presented in Table 13.

Table 13.

Distribution of studies within the research's scope based on their objectives

Themes	*Sub-themes*	Codes and sub-codes		*Tez(F)*	*Makale*
The Effect On General	21. hundred years of Skills	Life and Career Skills	Research Skills	1	2
			Entrepreneurial Skills	-	1
			Social and Cultural Skills	-	1
		Learning and Innovation Skills	Critical Thinking Skills	1	2
			The Ability to Think Creatively and Innovatively	3	-
		Information, Media, and Technology Skills	Science Literacy Skills	1	-
	Scientific Process Skills	Basic Process Skills	Collecting and Saving Data	-	6
			Making Contact	1	-
		Causal Process Skill (Inference)		3	-
	Basic Life Skills	The Ability to Understand Time and Chronology		-	1

	The Skill of Empathy	-	2
	The Effect Meta-Cognitive Thinking Skill	1	1
	on Thinking Mathematical Thinking Skills		1
	Skills	2	
	The General Effect of Learning on the Teaching Process	-	4
Attitudes,	Intrinsic motivation	3	4
Perceptions,	The impact on attitudes	9	19
and Beliefs	The impact on professional perceptions and career planning	1	-
	Learning autonomy	1	1
	To the level of motivation	1	-
	Belief in self-efficacy	4	4
The Impact on	Academic achievement	1	40
Achievements	Problem-solving success	1	4
Impact on	The level of conceptual understanding	-	2
Levels	The level of encouragement for creativity	-	5
	The level of spatial competence	-	1
	Determining the level of teacher application in practice	-	2
Difficulties	Experienced problems and finding solutions	4	2
Experienced	Classroom management	2	-
The Impact on	Self-regulation strategy	-	4
the Strategies	Supracognitive learning strategy	-	3
Used			
The Impact on	Transactional thinking ability	-	1
Competencies	The ability to think at a high level	-	1
	Studies on Increasing Qualifications	-	1
	General competence of teachers in the application of FO	-	4
	The effect of project-based virtual learning on proficiency	-	1
Testing	Determination of applicability	10	16
	Determination of validity and reliability	1	-
Literature Studies		2	22
Success and Permanence		3	5
Activity Development and Usefulness of Activities		7	5
Misconceptions		-	1

Table 16 thoroughly examines the objectives of the thesis and article studies regarding differentiated instruction. In differentiated instruction thesis studies, it has been determined that testing the applicability of differentiated instruction is the primary objective. It was observed that the majority (N=40) of the differentiated instruction research articles examined the effect of differentiated instruction on academic achievement. In the thesis studies included in the research on differentiated instruction, the effect of the most on attitudes (N=9) was examined. Five themes have been developed for the category of research methods for the included studies: qualitative, quantitative, mixed, and literature review. The sub-codes and numbers associated with these themes have been calculated. Table 14 displays the outcomes of the analysis of theses and articles based on their respective methodologies.

Table 14.
Examining differentiated ınstructional publications based on the method

Method		*Design*	*Thesis*	*Article*	*Total*	
					F	*%*
Qualitative		Factual Science		4		20
		Case study		3	31	
		Action Research	7	1		
		Case Study	5	11		
	Experimental	Fully Experimental	4			
	Patterns	Semi-Experimental	20	26	61	
		Weakly Experimental	3	4		
Quantitative		With One Subject	3	1		
	Non-	Descriptive	3	4		49
	Experimental	Compared	1			
	Patterns	Correlational		1	14	
		Scanning	3	1		
		Scale Development /Validity Reliability	1	1		
Mixed		Embedded Pattern	5			25
		Explanatory Sequential Pattern	4	1	38	
		Other	18	10		
Scanning of The Literature		Type field	2	8	10	6
Total			79	76	155	

Examining Table 14, it was discovered that the majority of differentiated instruction-related articles and dissertations (F=61) employed quantitative research methods. In the differentiated instruction article studies (F=26) and thesis studies (F=20), a semi-experimental pattern was preferred over experimental patterns and quantitative patterns at most. After the quantitative method, the qualitative method was used the most in differentiated instruction article studies (F=19), and the mixed method was used the most in differentiated instruction thesis studies (F=27).

Discussion

A bibliometric analysis of 1,067 differentiated instruction studies published in the WOS database between 1981 and 2021 was conducted as part of the research. In addition, 155 national theses and articles published between 2006 and 2021 in Sobiad, TR Index, DergiPark, and YOK Thesis Center about the same concept were contextually analyzed. In this section of the research, the results obtained from the analyses will be discussed in light of the related literature in the field.

The capacity for innovation, which is acknowledged by many developed nations and regarded as the engine of economic growth, is directly related to the ability to track global developments. To keep up with world events, it is necessary to conduct research and read. Researching and reading are only possible through a shared communication channel. The majority of studies conducted on the topic of differentiated instruction were conducted in English, according to the research. German, Spanish, Russian, French and German Spanish are the most widely spoken languages in the world, while English, Russian, and French are the most widely spoken languages. In this regard, English is crucial to subsequent developments. Likewise, Fanjul, Machado, and Lopez (2013) argue that English has a vital role in tracking developments in their study. In addition, researchers with superior English language skills are able to track the evolution of international field writing and read more. This conclusion can be attributed to the fact that the researchers also considered this circumstance, namely the adoption of English as a global language.

The studies in the WOS database were evaluated based on their publication year. The majority of differentiated instruction publications date from 2019. The number of articles was decreasing, albeit by a small amount compared to the years following 2019. Parallel to this finding, Effendi et al. (2021) stated in their study on scientific literacy that the number of studies on education fluctuated between 2000 and 2021. Nowadays, when there was an abundance of information, it was essential for researchers to be information literate in order to find the information they seek. Effective techniques are necessary for gaining access to useful information in electronic environments or libraries. While screening procedures were performed, research was conducted by author, study title, or keywords. According to Toy and Tosunoglu (2007), the careful selection of keywords, study titles, and content was crucial for the correct access of researchers to published works and their widespread influence. Differentiated instruction in the WOS database functions as a keyword in the article on "differentiated instruction" and "differentiation" in the words other than the most frequently used keywords in the survey, respectively; secondary education, inclusion, and pre-service teachers, it is observed that primary. Similarly, "differentiated instruction" was the most frequently used keyword in Coban's (2022) study on differentiated instruction. In his study, Coban (2022) examined differentiated instruction alongside special education, individual differences, learning style, and participation. According to Soler-Costa et al. (2021), in WOS publications in the field of technological pedagogical studies to examine the significance and development of the concept of knowledge, teacher training and teacher were the most popular keywords.

As a result of the research, the analyzed studies were evaluated based on the most-cited nations. The United States was cited the most, according to the research's findings. Belgium, the Netherlands, Canada, and Romania follow the United States. This result is consistent with Schubert and Glanzel's (2006) conclusion that the United States holds a preeminent position among the countries most frequently cited worldwide. Similarly, Coban (2022) concluded that the United States was most frequently cited in his research. In this regard, the studies of Ortega and Aguilar (2013) and Fanjul, Machado, and Lopez (2013) support the contention that the United States dominates the global scientific production map. The number of citations for a scientific article indicates how frequently it has been cited by other scientists (Beel & Gipp, 2009). In academic search engines, the Deciphering of publications takes into account the number of citations. It is common knowledge that researchers typically consider the first page of results returned by search engines when conducting research. Dec. Consequently, the number of citations of an article was a crucial metric for gauging its significance. Citation numbers also provide crucial information about the researchers, journals, and organizations where the study was published. According to the obtained data, he cited VRIJE University most frequently. The Amsterdam, Netherlands-based VRIJE University was founded in 1880. The universities that follow the University of VRIJE are the University of Virginia (USA, 1819), the University of Groningen (Netherlands, 1614), and the University of Ghent (Belgium, 1819), in that order. The fact that the most cited universities pertaining to differentiated instruction are located in the United States, the Netherlands, and Belgium coincides with the most cited countries pertaining to differentiated instruction.

The scope of the study's articles and the most cited journals were examined. The most cited journal, according to the findings, was the Journal of Teaching and Teacher Education. The Journal of Teaching and Teacher Education comes first, followed by the Review of Educational Research and Educational Leadership, and then by the International Inclusive Educational journals. In parallel with these research findings, he came to the conclusion that the journal that receives the most references about differentiated instruction in Coban (2022) was Teaching and Teacher Education. The journal of teaching and teacher education is a worldwide publication that focuses on teachers and teacher education. The Journal of Teaching and Teacher Education was among the Q1 class journals indexed by the SSCI. The journal Review of Educational Research publishes critical, integrative reviews of the educational research literature. The journal Review of Educational Research is also included in the Q1 class. In addition to the fact that journals can be

scanned in the WOS database or have SSCI, the Q classification of journals is now receiving attention (Orbay et al., 2021).

Struyven was the most cited author in WOS articles on differentiated instruction. Struyven received the highest citations, followed by Coubergs, Engels, Valandes, and Vanthourmount, in that order. Katrien Struyven resides at VRİJE University and focuses on issues including differentiated instruction, collaborative instruction, and new forms of assessment in education (Url-1). The studies included in the scope of the study were evaluated based on the publication types. The majority (51%) of the 155 studies that were subjected to content analysis were dissertations. Examining these theses according to their types revealed that the number of studies published as Master's theses was greater (N=42). It's believed that the number of doctoral students is lower than the number of graduate students. This explains why there are more master's theses than doctoral theses. Similarly, Altinpulluk (2018) stated in his study that this may be due to the superior quality of doctoral dissertations compared to master dissertations.

The scope of the research was limited to studies that were published in December of the year under consideration. According to the obtained results, the majority of publications were published between 2018 and 2021. When each dissertation was examined separately, it was determined that most articles were published between December 2018 and December 2021. In December of 2019-2020, Covid-19 began to affect our nation and the rest of the world (Viner et al., 2020; World Health Organization [WHO], 2020). The epidemic has also presented us with a number of challenges and opportunities. According to Buheji and Ahmed (2020), one of these opportunities is for institutions and individuals to take a different perspective by stepping outside their comfort zones and adopting new lifestyles, attitudes, and behaviors. In addition, the increased use of technology during the epidemic period has facilitated access to information (Winthrop, 2020). The distribution of theses included in the research scope by the university where they were published was examined. According to the findings, most theses related to differentiated instruction published on the YK Thesis were published at Ataturk and Bahcesehir Universities (N=8). Following Ataturk and Bahcesehir Universities, the institutions with the highest number of publications on differentiated education are Istanbul, Gazi, METU, and Yıldız Technical University. The fact that the academic staff numbers at Ataturk and Bahcesehir Universities are sufficient and institutionalized suggests that the reason for the large number of research numbers in this sense may be the reason for the large number of research numbers in this sense. The majority of the national articles included in the scope of the study were published in the European Journal of Educational Research (N=4) and the Sakarya University Journal of Education (N=4), according to an analysis of their journal distribution. In their bibliometric analysis of education journals, Zurita et al. (2016) concluded that the European Journal of Educational Research is the second journal that receives the most citations from journals on educational studies. The European Journal of Educational Research is a journal with a quality rating of Q3. The classification of periodicals as Q indicates that they are qualified publications.

After selecting an appropriate method for the problems that scientists were attempting to solve, it was possible to collect data and correlate it with previous research using credible scientific studies. Therefore, a researcher who wishes to present a credible study places great emphasis on the methodology section. Examined were the methods and patterns utilized in the national theses and articles included in the scope of the study. Based on the findings, it has been determined that the majority of studies on differentiated instruction have been quantitative. The most preferred quantitative method was the experimental design. Quantitative research methods use numerical data, the universe, a representative sample, and generalizations to answer research questions (Cristensen, Jhonsen, & Turner, 2020; Yin, 1994). Positive philosophy underpins quantitative research techniques (Sonmez & Alacapınar, 2018) According to this philosophy, there was order in the universe, and humans can comprehend and control it. This order, on the other hand, was grounded in concrete, observable, and measurable reality. This method of research permits researchers to obtain results that were devoid of subjectivity. Thus, studies with greater demonstrability can be proposed. In quantitative research methods, he prefers to examine

these actual sensory organs and what we perceive (Yıldırım & Sımsek ,2018; Buyukozturk et al., 2020). Creswell and Clark (2018) state that the quantitative method, which considers reality to be independent of the researcher, focuses on a single reality by differentiating between facts and emotions.

When the data collection instruments of national studies were analyzed in detail, it was discovered that attitude and perception scales were utilized the most in dissertations and journal articles (F=117). Attitude and perception scale thesis on achievement tests (F=52), article, and interview forms (F=25) subsequently followed (Karakas, 2019). According to Oral and Coban (2020), scale was the task of applying numbers to objects or observations based on a particular rule and system. On the other hand, an attitude was a positive or negative view of a particular object or event. Although attitudes cannot be directly measured, they can directly influence attitudes and behaviors (Morgan, 1996). Inconsistent emotional and behavioral tendencies of individuals are made consistent by their attitudes. It was believed that the reason attitude scales and achievement tests are most commonly used in the studies included in the research was because the success and attitude variables were regarded as the most important in research, the measurement tools related to these variables are easily accessible, and these variables have been studied extensively. This data's methods and patterns were consistent with the finding that field-type scanning was the least frequently used pattern. It was believed that this situation is the result of the belief that research on differentiated instruction has not yet reached a sufficient level of accumulation.

In addition to the sample size, variables based on the purpose of the research and the nature of the problem should be taken into account when determining the research sample (Patton, 2014). The primary objective of the study was to reach the target audience. However, when it is impossible to reach the target audience, the researcher must carefully select the sample (Karaca, 2021). The community that has the potential to best represent the primary audience by selecting the most appropriate method for the intended purpose is the community that best represents the primary audience (Creswell & Clark, 2018). The sample size of each study included in the scope of the investigation was analyzed. In his research-involved theses on differentiated instruction, it was determined that he favored a sample size ranging from 1 to 100 individuals in December, based on the obtained results. In addition, the examination based on sample groups revealed that the middle school (5-8 grade) sample group was most frequently examined in theses and articles. Parallel to the study, Montenegro (2013) concluded that secondary school students are favored in the studies conducted for his content analysis study on differentiated education. Contrary to this finding, some studies have found that older age groups provide the most readily available sample in the literature (Ozmen & Ulku-Kan, 2021; Altınpulluk, 2018; Karakas, 2019).

The study's objectives were revealed by the research's purpose. It should be made clear why scientific research was conducted and what it contributes (Buyukozturk et al., 2020 Sonmez & Alacapınar, 2018,). Examining the objectives of the national articles included in the study reveals that the effect of differentiated instruction on student achievement (N=40) is frequently addressed. Similarly, in international studies, the influence of differentiated education on student achievement has been examined (Haughton, 2015; Richards & Omdal, 2007; Springer, Pugalee & Algozzine, 2007). The fact that attitude and perception tests were the most preferred data collection method in other findings obtained was consistent with the findings obtained from the thesis. The study's findings include tests of attitude and perception, followed by tests of achievement in theses and interview forms in articles. In this case, it can be seen that researchers were attempting to determine the effect of interviews on attitudes in article studies on differentiated instruction, whereas success tests are used in studies aimed at determining the applicability of differentiated instruction in theses.

Conclusion

It has been determined that the subject of differentiated instruction, which was viewed as a well-established and effective method in previous decades, has maintained its significance and

popularity in recent years. On the topic of differentiated instruction, a total of 155 studies were analyzed between October 2006 and September 2009, including 76 articles and 79 thesis studies that are also available in the YOK Thesis, Sobiad, TR Index, and DergiPark databases. The majority of the analyzed studies were found to be thesis studies. Bibliometric analysis was also performed on 1067 article studies related to differentiated instruction as part of the research.

According to the research, the highest number of publications was reached in 2019 with 113 publications, and the highest citation value was reached in 2021 with 2,251 citations. In recent years, the number of publications and citations has increased, as indicated by the research findings. This demonstrates that researchers have maintained an interest in the topic of differentiated instruction in recent years and view it as significant. In the number of publications and citations of studies conducted from 1981 to 2021, it has been seen that differentiated teaching has emerged as a subject that has been integrated with technological issues and pioneered interdisciplinary researchs. Bibliometric analysis in a manner that overlaps with the findings from the research articles and theses that were included in the scope of the distribution according to years of examining the majority of the work on differentiated instruction 54 percent (N=43) with the thesis work in 65 percent (N=49) of the article concludes that with work published between 2018 and 2021. In general, a decency of 60% (N=93) was observed for articles and dissertations published between 2018 and 2021.

According to publication types, 79 thesis studies that were subjected to content analysis were examined. It was discovered that 42 of the reached theses were master's level studies. The majority of graduate-level research in the YOK Thesis DergiPark, Sobiad, and TR Index databases focuses on differentiated instruction, as determined by this analysis. The majority of the 1067 differentiated education article studies retrieved from the WOS database were written in English. German Spanish Russian French and German Spanish are the most widely spoken languages in the world, while English, Russian, and French are the most widely spoken languages. German, Spanish, French and Russian compared to the use of English in other countries is more remarkable. This is because, as Crystal (1997) also states, English has a special status and has been recognized by other nations In this regard, English is crucial to subsequent developments. In a similar vein, Fanjul, Machado and Lopez (2013) argue that English plays a crucial role in tracking developments in their study.

The most cited words from the 1067 article studies covered by WOS were examined. The VOSviewer software tool has generated 154 words. Differentiated instruction has been determined to be the most frequently used keyword among those produced. Despite the fact that thousands of articles have been published in our country, the number of citations for these articles was small. This situation could be caused by a lack of scientific production and synthesis, as well as an insufficient transfer of keyword content or some mistakes in keyword selection (Erdogan & Senemoglu, 2014). As a result, it is critical for researchers to correctly identify publications and carefully select keywords, study titles, and content in order to maximize their impact (Toy & Tosunoglu, 2007). According to the results of the Citation Analysis conducted to identify the most cited authors, Struyven (Citation=39) and Coubergs (Citation=36) were the most cited authors. Struyven received the highest citations, followed by Coubergs, Engels, Valandes, and Vanthourmount, respectively. Katrien Struyven resides at VJIE University and focuses on issues including differentiated instruction, collaborative instruction, and new forms of assessment in education.

Citation Analysis (Citation Understanding) conducted to identify the most cited countries in articles on differentiated instruction in WOS revealed that the United States (Citation =67) and Belgium (Citation =67) were the most cited countries. Following the United States are Belgium, the Netherlands, Canada, and Romania. This result was consistent with Schubert and Glanzel's (2006) conclusion that the United States holds a prominent position among the most frequently cited nations. Similarly, Coban (2022) determined that the United States was the most cited nation in his study. In this regard, the studies of Luis Ortega and Aguilar (2013) and Fanjul, Machado, and

Lopez (2013) also support the notion that the United States dominates the global map of scientific production. Citation analysis for the determination of the most cited institutions identifies VRIJE University (Citations=39, Documents=4) and the University of Virginia (Citations=57, Documents = 2) as the most cited institutions. When the distribution of content-analyzed thesis studies to universities was examined, it was determined that differentiated instruction thesis studies were published in 31 different universities. Ataturk and Bahcesehir Universities were discovered to have published the most dissertations among the universities surveyed.

To determine the most-cited journals, a Citation Analysis was conducted. The bibliometric mapping of 27 journals has been accessed. Teaching and Teacher Education (Citations=53) and the Review of Educational Research (Citations=39) were determined to be the journals with the highest number of citations among those retrieved. When the article studies included in the research scope were examined bibliometrically based on the journals in which they were published, 36 different journals pertaining to differentiated instruction contained article studies. European Educational Research and Sakarya University Journal are the periodicals that publish the most differentiated articles on teaching, according to analysis. Citation Analysis was performed to determine the abstract sections' most frequently cited terms. The distribution of 14 words was mapped during the analysis, and the resulting data were added to the frequency table. The analysis revealed that differentiated instruction (F=34) and study (F=31) were the most frequently cited keywords in the abstract. The objectives of 155 studies in which content analysis was performed were evaluated. It has been observed that articles on differentiated instruction investigate the effect of differentiated instruction on academic achievement the most, whereas thesis studies investigate the effect on attitudes.

Examining the published articles and theses on the topic of differentiated instruction in terms of the methodologies and techniques employed revealed that the quantitative method was most frequently employed. The research concluded that the articles and dissertations included in the scope of the study were, at most, semi-experimental in design and quantitative in methodology. When the 155 studies included in the scope of the study were analyzed based on the data collection methods, it was determined that attitude and perception tests were the most frequently used method in both article and thesis studies. Examining the number of samples for the 155 articles and thesis studies on differentiated instruction obtained from the YOK Thesis DergiPark, Sobiad, and TR Index databases, it was determined that the total number of articles and thesis studies included was 1-100 (F=110). According to the sample group, 155 articles and thesis studies included in the scope of the research were examined. As a result of the analysis, it was determined that the scope-relevant articles and dissertations favored the secondary school (5-8) group as the sample group

Recommendations

- The articles and theses included in the scope of the study were retrieved from the databases YOK Thesis, DergiPark, Sobiad, TR Index, and WOS. Changes or diversifications to the databases can be made for future studies. Using databases such as Ebsco and Scopus can increase the diversity of research.

- It was determined that literature review and document analysis were the least used methods as data collection tools in the studies included in the research. For this reason, literature review studies can be directed to studies on differentiated instruction.

- When the research conducted on differentiated teaching was examined, it reveals that the general studies conducted in this field are theses.In addition, the majority of theses are master's theses. It is possible to devote more space to the topic of differentiated teaching in the upcoming doctoral dissertation research.

• In national and international studies on differentiated instruction, mixed studies were rarely encountered. In future research, it may be possible to increase the number of mixed-method studies pertaining to differentiated instruction.

• It has been observed that differentiated instruction is typically examined at the secondary school level. There were no studies regarding preschool. The number of studies on preschool can be increased, or the impact on various grade levels can be examined by utilizing diverse sample groups.

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Genişletilmiş Özet

Giriş

Her bireyin öğrenme tarzı birbirinden farklıdır (Fiore ve Cook, 1994; McGarvey ve ark., 1997). Demos ve Foshay'a (2009) göre, her öğrenci kendini öğrenirken ve ifade ederken benzersizdir. Farklılaştırılmış öğretim, eğitimin aynı öğrenme ortamındaki öğrencilerin farklılıkları dikkate alınarak yapılması gerektiğine vurgu yapmaktadır (Bush, 2006; Hall, Meyer ve Strangman, 2010). Bu görüşe dayanarak, farklılaştırılmış öğretimin, her öğrenme ortamında öğrencilerin farklı öğrenme ihtiyaçlarına yönelik çeşitli strateji ve yöntemlere gittiği söylenebilir (Ericson, 2010). Farklılaştırılmış eğitimin, nitelikli eğitim sağlamanın yanı sıra öğrencilerin bireysel gelişimine de katkıda bulunduğuna inanılmaktadır (Lawrence-Brown, 2004). Farklılaştırılmış öğretim ortamları, çocukların kendi öğrenme hızlarına göre bireysel olarak öğrenebilecekleri ortamlar bulmalarını sağlar ve bu da öğrencilerin kendilerini her zaman bir adım ileriye taşımalarını sağlar (Koeze, 2007). Bunlara ek olarak, Smeeton'a (2016) göre farklılaştırılmış öğretim, öğrencilerin ihtiyaçlarını karşılamanın yanı sıra öğretim programlarının uygulanması sırasında yaşanan sorunların çözümünde de oldukça etkilidir.

Farklılaştırılmış öğretimin önemli faydalarından biri, bu yaklaşımı öğrenme ortamında kullanan öğretmenin zamanı daha esnek kullanması ve öğrencileriyle birlikte hareket edebilmesidir (Tomlinson, 1999a). Bu durum aynı zamanda değişken ve sürekli etkileşimli bir öğrenme ortamının oluşmasını sağlar (Staruss &Corbin,1990). Bu nedenle farklılaştırılmış öğretim, öğrenme ortamının daha keyifli hale getirilmesine katkıda bulunur (Tomlinson, 2001).

Ayrıca farklılaştırılmış öğretim öğrencilerinin ilgi öğrenme profilleri, hazır bulunuşluklarına göre hazırlanan öğrenme ortamlarında yaşanabilecek olası hayal kırıklıklarını önlemektedir (Tomlinson, 2007). Her bireyin farklı olması ve hiçbir öğrencinin aynı olmaması, ki bu yadsınamaz bir gerçektir, farklı özelliklere sahip çocukların tek tip bir eğitimden eşit olarak yararlanamayacağını göstermektedir (Gül, 2014; Heacox, 2002; Abbant, 2012). Bu amaçla farklılaştırılmış öğretim, öğrencilerin ihtiyaçlarını göz önünde bulundurarak öğrenme potansiyellerini genişletmeyi ve akademik gelişimlerinin en üst seviyesine çıkarmayı amaçlamaktadır (Tomlinson, 2001).

Bu araştırmanın problemi "Farklılaştırılmış öğretimle ilgili ulusal ve uluslararası çalışmaların araştırma eğilimi nasıldır?" şeklindedir. Bu problem cümlesinden yola çıkarak araştırma sorularına aşağıda yer verilmiştir.

Araştırma sorusu 1: 1981'den 2021'e kadar yayınlanan farklılaştırılmış öğretime ilişkin Web of Science veri tabanındaki makalelerin eğilimleri nelerdir?

1. Çalışmaların yıllara göre dağılımı nasıldır?

2. En çok alıntı yapılan anahtar kelimeler hangileridir?

3. En çok alıntı yapılan ülkeler ve kuruluşlar hangileridir?

4. En çok alıntı alan dergiler hangileridir?

5. En çok alıntı yapılan araştırmacılar kimlerdir?

Araştırma sorusu 2: 2006-2021 yılları arasında yayınlanan farklılaştırılmış öğretime ilişkin ulusal alan literatüründeki çalışmaların (makale ve tezler) araştırma eğilimleri nelerdir?

1.Araştırmaya dahil edilen çalışmaların yayın türlerine ve yıllara göre dağılımı nedir?

2.Araştırmanın yapıldığı üniversitelerin dağılımı nedir?

3.Makalelerin dergilere göre dağılımı nasıldır?

4.Araştırmaya dahil edilen çalışmaların amaçlarına ve yöntemlerine göre dağılımı nasıldır?

5.Araştırmanın veri toplama araçlarına ve örneklemlerine göre dağılımı nasıldır?

Bu araştırmada farklılaştırılmış öğretimdeki araştırma eğilimleri bibliyometrik ve içerik analizleri kullanılarak ulusal ve uluslararası boyutlarda değerlendirilecektir. Bu araştırma ile köklü ve etkili bir öğretim yaklaşımı olan farklılaştırılmış öğretim araştırmalarına yol gösterici ve temel bir kaynak olarak hizmet edilmesi amaçlanmaktadır. Geçmişten günümüze dizin ve veri tabanlarında yapılan çalışmalar incelenerek alanda yapılan çalışmalar için bütüncül bir çerçeve oluşturulması amaçlanmaktadır.

Yöntem

Bu araştırmada farklılaştırılmış öğretim ile ilgili yapılan çalışmalar nicel ve nitel yaklaşımlarla incelenmiştir. Araştırmada nicel yaklaşıma dayalı bibliyometrik yöntem ve nitel yaklaşıma dayalı içerik analizi kullanılmıştır. Farklılaştırılmış öğretim çalışmalarındaki eğilimler nicel ve nitel bakış açılarıyla analiz edilmiştir. Herhangi bir konuda yapılan araştırmaların sayısı konuyla ilgili bilgi birikiminin bir bütün olarak algılanmasını güçlendirir. Bu tür sorunların çözümüne yönelik çözümlerden biri bibliyometrik analizdir. Bu çalışmada bibliyometrik analiz için WOS (Web of Science) veri tabanında farklılaştırılmış öğretim üzerine 1067 makale belirlenmiştir. Bu veri tabanına ek olarak Sobiad (Sosyal Bilimler Araştırmaları Derneği), TR Index, Dergipark ve YÖK tez veri tabanlarında yayınlanan öğretimle ilgili farklılaştırılmış 155 makale ve tez içerik analizine dahil edilmiştir. WOS veri tabanında "diffrerentiated instruction" kavramları ilgili veri tabanlarının arama bölümüne anahtar kelime olarak girilmiştir. Bu anahtar kelimeler, eğitim ve öğretim araştırması konusu kapsamında ayrıntılı olarak incelenmiştir. Bibliyometrik ve içerik analizi için toplam 1.222 farklılaştırılmış öğretim yayını çalışmaya dahil edilmiştir. 1981-2021 yıllarında yayınlanan makaleler bibliyometrik analize esas alınırken, 2006-2021 yıllarında

yayınlanan tezler ve makaleler içerik analizine esas alınmıştır. İçerik analizi kapsamında yer alan çalışmalar 2006 yılından itibaren başlamıştır. Bu durumun nedeni, incelenen veri tabanlarında araştırmaya dahil edilme kriterlerini karşılayan en eski yayının 2006 yılında Ilgan tarafından yayınlanmış olmasıdır.

Sonuçlar

Elde edilen bulgulara göre ilk farklılaştırılmış öğretim (FÖ) makalesi 1981 yılında yayınlanmıştır. FÖ makale sayısının en fazla olduğu yıl 2019'dur (N=113, Alıntılar=1700). En yüksek alıntı değerine 2021'de ulaşılmıştır (N=99, Alıntı=2251). Bu bulguya paralel olarak Effendi ve arkadaşları (2021) bilimsel okuryazarlık çalışmalarında 2000-2021 yılları arasında eğitime yönelik çalışma sayısının değişiklik gösterdiğini belirtmişlerdir. Araştırma bulguları dikkate alındığında farklılaştırılmış öğretimin köklü bir konu olduğu ve araştırmacılar tarafından artan bir ilgiye sahip olduğu ortaya çıkmaktadır. Bulgulara göre en çok atıf yapılan anahtar kelimeler sırasıyla farklılaştırılmış öğretim, farklılaştırma, ortaöğretim, kaynaştırma, öğretmenler/öğretmen adayları, ilköğretim şeklindedir. Soler-Costa ve arkadaşları (2021) WOS yayınları TPAB'de (teknolojik pedagojik çalışma alanı bilgisi) yapılan çalışmaların önemini ve gelişim kavramını incelemek amacıyla bu çalışmaya paralel olarak en çok tercih edilen anahtar kelimeler, öğretmen yetiştirme ve öğretmenlik anahtar kelimeleridir. Alıntı analizi sonuçlarına göre Struyve (N=4, Alıntı=39), Coubergler (Belgeler= 2, Alıntılar=36), Engels (Belgeler= 2, Alıntılar=36), Valiandes (Belgeler= 1, Alıntılar=33) ve Vanthourmout (Belgeler= 1, Alıntılar=33). Katrien Struyven, VJIE Üniversitesi bünyesinde yer almaktadır ve farklılaştırılmış öğretim, iş birliğine dayalı öğretim, eğitimde yeni değerlendirme biçimleri gibi konularla ilgilenmektedir (VJIE, 2022).

Ülkelere göre Atıf Analizi sonuçlarına göre en çok atıf yapılan ülke ABD (Belge=8, Atıf=67), onu Belçika (Belge=8, Atıf=67) ve Hollanda (Belge=6, Atıf=42) izlemektedir. Bu bulgu, Schubert ve Glanzel'in (2006) Amerika Birleşik Devletleri'nin evrensel olarak en çok alıntı yapılan ülkeler arasında olağanüstü bir role sahip olduğu bulgusuyla örtüşmektedir. Avrupa kıtasında yer alan Belçika ve Hollanda da komşu ülkelerdir. Bu durum, Avrupa kıtasının FÖ konusuna daha fazla ilgi duyduğunu göstermektedir. Elde edilen bulgularda en çok VRIJE Üniversitesi'nden alıntı yaptığı gözlemlenmiştir. VRIJE Üniversitesi, 1880 yılında Hollanda'nın Amsterdam şehrinde kurulmuş bir kurumdur. VRIJE Üniversitesi'ni sırasıyla Virginia Üniversitesi (ABD, 1819), Groningen Üniversitesi (Hollanda, 1614) ve Gent Üniversitesi (Belçika, 1817) izlemektedir. Benzer şekilde Çoban'ın (2022) çalışmasında da en çok alıntı yapılan kuruluşların Gent Üniversitesi, Brüksel Üniversitesi ve Amsterdam Üniversitesi olduğu sonucuna varmıştır. Alıntı Analizi sonuçlarına göre en çok alıntı yapılan dergiler Teaching and Teacher Education (Öğretim ve Öğretmen Eğitimi Dergisi), Review of Educational Research (Eğitim Araştırmalarının Gözden Geçirilmesi), and Educational Leadership (Eğitimsel Liderlik) olarak belirlenmiştir. Araştırma kapsamında elde edilen bu bulgulara paralel olarak Çoban (2022), FÖ hakkında en çok alıntı yapılan derginin Öğretmenlik ve Öğretmen Eğitimi (Teaching and Teacher Education) dergisi olduğu sonucuna varmıştır. Her iki derginin de 1. çeyrek sınıfında olması da elde edilen önemli bulgulardan biridir. 2018-2021 yılları arasındaki çalışmaların %60'lık bölümü ile çalışmaya dahil edilen çalışmaların en yüksek oranına sahip olduğu görülmüştür (N=93). Atatürk Üniversitesi'nin %12'si (N=8) ile ilgili tez %12'dir (N=8). 2019-2020 arasında Covıd-19 ülkemizi ve tüm dünyayı etkilemeye başlamıştır (Viner ve ark., 2020). Salgın, hayatımıza birtakım sorunlar ve fırsatlar da getirdi. Buheji ve Ahmed'e (2020) göre bu fırsatlardan biri de kurum ve bireylerin kendi yaşam tarzlarını, tutum ve davranışlarını konfor alanlarından çıkararak farklı bir bakış açısı kazanmalarıdır. İçerik analizinde elde edilen bulgulara göre, konuyla ilgili tez çalışmalarında en farklılaştırılmış öğretimin uygulanabilirliğini test etmeyi amaçladıkları görülmüştür Farklılaştırılmuş öğretim ile ilgili yapılan makale ve tez çalışmalarında genel olarak nicel yöntemde çalışıldığı görülmüştür. Ayrıca FÖ ulusal yayınlarında %30 oranıyla en çok kullanılan veri toplama aracı olarak tutum ve algı testleri belirlenmiştir (N=117). Çalışmanın devamında çalışmaya dahil edilen çalışmaların

örnek sayısı incelendiğinde tezlerde %81 (N=64), makalelerde ise %74 (N=54) oranıyla maksimum örnek sayısının 0-100 arasında olduğu görülmektedir.