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BIBLIOMETRIC ANALYSIS OF PUBLICATIONS ON GERMAN AS A FOREIGN LANGUAGE IN WOS EXAMPLE

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Abstract:
In this study, publications on German as a foreign language in the Web of Science (WOS) database were analyzed by bibliometric method. The data obtained allowed to make a general case evaluation in the field of German as a foreign language. Accordingly, it was determined that the articles were prominent among the publications types on the related subject in the WOS database. German and English as the language of publication, America and Germany among the countries of publication, linguistics and educational sciences in terms of research areas, L.M. Kutch as the most productive author draw attention. The year with the highest number of publications is 2015, and the year with the highest number of citations is 2021. In addition, the article with the highest number of citations is G. Kasper's article entitled "Participant orientations in German conversation-for-learning" published in the "Modern Language journal" in 2004. Further, network maps were created by using the VOSviewer program to visualize bibliometric relationships in the study. In the clusters in the first of these maps, it was seen that "German as a foreign language", "multilingualism", "foreign language teaching", "German", "teaching German as a foreign language" were frequently repeated among the keywords of the publications selected as data. Following this, co-citation network map of the journals was created. Journals with the highest total link strength in the clusters of this map are "Modern Language Journal", "Language Learning", "Bilingualism: Language and Cognition", "Language Testing", "Foreign Language Annals" and "Deutsch als Fremdsprache". Finally, it was understood that the authors with the highest total link strength in the clusters included in co-citation network map of authors are R. Ellis, Z. Dornyei, G. Neuner, C. Altmayer, T. Heift, K. Ehlich and N.C. Premawardhena.

Keywords: German as a foreign language, bibliometric analysis, Web of Science, science mapping

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1. Introduction

It is possible for science fields to advance cumulatively with technological developments and the rapid transfer of theoretical information into application. Books, articles published in related fields and papers presented at scientific meetings play an important role in this framework (Taşkın & Çakmak, 2010, p.333). Today, the rapid increase of knowledge has compelled the evaluation of scientific studies in terms of quality and quantity. In researches of literature carried out, data on trends in related fields can be accessed and various evaluations can be made (Tok, 2022, p.63). Pritchard (1969) proposed the use of the concept of bibliometrics in the application of mathematical and statistical methods to books and other means of communication. Today, when the volume of data has reached the maximum level and has become complex, it is argued that there is a need to resort to bibliometric analysis in the classification and arrangement of these data and to make them more understandable (Tabak et al., 2016, p.119). Bibliometric analysis is the application of quantitative methods for the study of scientific sources (Wallace, 1989, p.10) and it is accepted as a literature review tool (Şimşir, 2022, p.15). Such studies make it possible to statistically analyze the data on topics such as author, subject, cited sources and authors, and to present the general structure of the relevant field in the light of the results (Çetinkaya Bozkurt & Çetin, 2016, p.232). In other words, the examination of the literature with bibliometric analysis allows to see how this field has developed and its current situation, and to collect clues about how it will follow the development lines in the future. In this framework, information on the conceptual, cooperation and intellectual structure of the relevant field can be accessed in the studies in question, and research orientations and even problematic situations can be revealed in a broad perspective. In terms of making contributions in this direction, Öztürk and Özsoy's (2022) work titled "Bibliographische erfassung der Online veröffentlichten Beiträge in der Diyalog-Zeitschrift des Germanistenverbandes im Zeitraum 2013-2020" can be shown as an example. In the aforementioned study, data on the situation of the journal "Diyalog interkulturelle Zeitschrift für Germanistik", which is published in Turkey and includes German-oriented publications, in the period of 2013-2020 are presented.

The fact that German is among the prominent languages in foreign language education in various countries of the world has necessitated the positioning of German as a foreign language on the scientific plane, and in this direction, the academic studies carried out until today have created a certain accumulation. The conduct of studies aimed at determining the current situation of German as a foreign language in the global sense within the framework of bibliometric indicators is perceived as a requirement arising from this accumulation. For this reason, in this study, a bibliometric analysis of studies on the topic of German as a foreign language on a global scale was carried out within the framework of certain limitations.

2. Methodology

2.1. Aim, importance and model of the research

In this study, the question of how the current status of the publications on German as a foreign language is examined. Today, when the inclusion of scientific publications in databases has become a sign of respectability, taking data on publications in a field from databases accepted by academic circles and analyzing them with bibliometric indicators allows the literature to be examined with the main lines. Because the data reached in such studies provides a picture of the state of publications in the relevant field, the agenda in the field, their change over the years, and the position of scientific elements in this process. In this study, which was carried out in this direction, descriptive research design was preferred and it was aimed to reach comprehensive data on the status of publications on the subject of German as a foreign language.

2.2. Data collection

The source of bibliometrics is databases. Through specialized data processing operations, databases can be used to create bibliometric indicators (Okubo, 1997, p.14). The acceleration of the increase in scientific knowledge, the facilitation of access to information and the desire to take into account as many publications as possible in research to improve the quality of scientific production have led to the emergence of databases where publications such as books, book chapters, articles and papers are systematically stored and made available. It is observed that the publications contained in these databases, which contain scientific content in recent periods, constitute a source for research from various aspects. The information belonging to these publications, which are used as data in these researches, can be analyzed with bibliometrics and evaluations can be made about the relevant field.

There are many studies that are based on databases and focused on bibliometrics at home and abroad (Ball & Tunger, 2005; Cañas-Guerrero et al., 2014; Gürler, 2022; Koç, 2022; Şeref & Karagöz, 2019a; Şeref & Karagöz, 2019b; Wang et al., 2014). Web of Science (WOS), Scopus, Google Academic (GS), Education Resources Information Center (ERIC) and Microsoft Academic (MA) are among the widely used databases in these studies. Of these, the WOS database, which includes SSCI (Social Science Citation Index), SCI-Expanded (Science Citation Index-Expanded) and A&HCI (Arts and Humanities Citation Index) citation indexes, is big data for studies in different subject categories. By analyzing these data, researchers follow the scientific activity in the literature and can observe the general situation, developments and trends in the related science field (Karagöz & Şeref, 2020, pp.69-70).

In the study, WOS database was preferred to access the data (https://www.webofscience.com). The main reason for this is that the international recognition and validity of the WOS database has been accepted by scientific circles. Furthermore, as stated by Yeşiltaş (2021), it is another important reason that the data obtained from the WOS database is supported by many software. In the data retrieved

from the said database, there are parameters such as the author of the articles, the year of publication, the number of citations, their countries, the collaborations between the authors, the institutions of the authors, the effective journals, the most used keywords (pp.8-9). Taking these into consideration, in the data collection process, the search field in the main collection section of the WOS database was searched by entering the word groups "German as a foreign language" as the English equivalent of the word group "Yabancı dil olarak Türkçe" and "Deutsch als Fremdsprache" as the German equivalent. As a result of the search, data for the relevant field were obtained. Handling only the data obtained from the WOS database constitutes the main limitation of the study. The search in this database also considered the 1976-2022 year range.

2.3. Data analysis

Bibliometric analysis was used in the processing of the data obtained in the study. As a result of the search, the distribution of the publications according to their types, languages, countries, WOS research areas, the most productive authors, the change in the number of publications and citations over the years, and the data obtained regarding the most cited articles were presented in graphics and tables. Additionally, the science mapping technique was used to visualize the relationships between the data for some bibliometric indicators.

Science mapping consists of analysis and visualization processes related to a field. The field of scientific research or special research questions fall within the scope of science mapping studies. The unit of analysis in the science map is the field in which the intellectual contribution of the members of a scientific community is reflected. The structure of this field, which includes components related to the basic research program, may experience changes. The aim of science mapping studies is to make intellectual structures visible and to interpret dynamic patterns (Kurutkan & Orhan, 2018, p.4). Many programs can be used to make map analysis by visualizing the data collected in bibliometric studies. In this study, the VOSviewer program, which is compatible with various databases, was preferred.

VOSviewer is a software tool that is used to create and visualize bibliometric networks (Van Eck & Waltman, 2017). This program aims to place the distance between two elements in a low-dimensional space so that it reflects their similarities or relationships as accurately as possible (Van Eck et al., 2010). In the science maps created with the help of the VOSviewer program, the junction points and the network connections between them represent the elements (Dönbak, 2020, p.56). Unlike programs such as SPSS and Pajek, VOSviewer, which is used for bibliometric mapping, attaches great importance to the graphical representation of bibliometric maps. The functional side of this program is that large bibliometric maps can be displayed so that they are easily interpreted (Van Eck & Waltman, 2010, p.536).

Looking at national and international studies (Cobo, 2015; Fırat et al., 2018; Orhan, 2022; Yu et al., 2020), it is understood that there is interest in researches that apply science mapping technique in various fields. In this study, network map of

keywords, co-citation network map of journals and authors were created and evaluated by applying science mapping technique in order to visually determine and present the relationships between bibliometric indicators.

3. Findings

In this part of the study, findings related to bibliometric indicators and network map of a total of 512 publications obtained by searching the word groups "German as a foreign language" and "Deutsch als Fremdsprache" in the WOS database are presented.

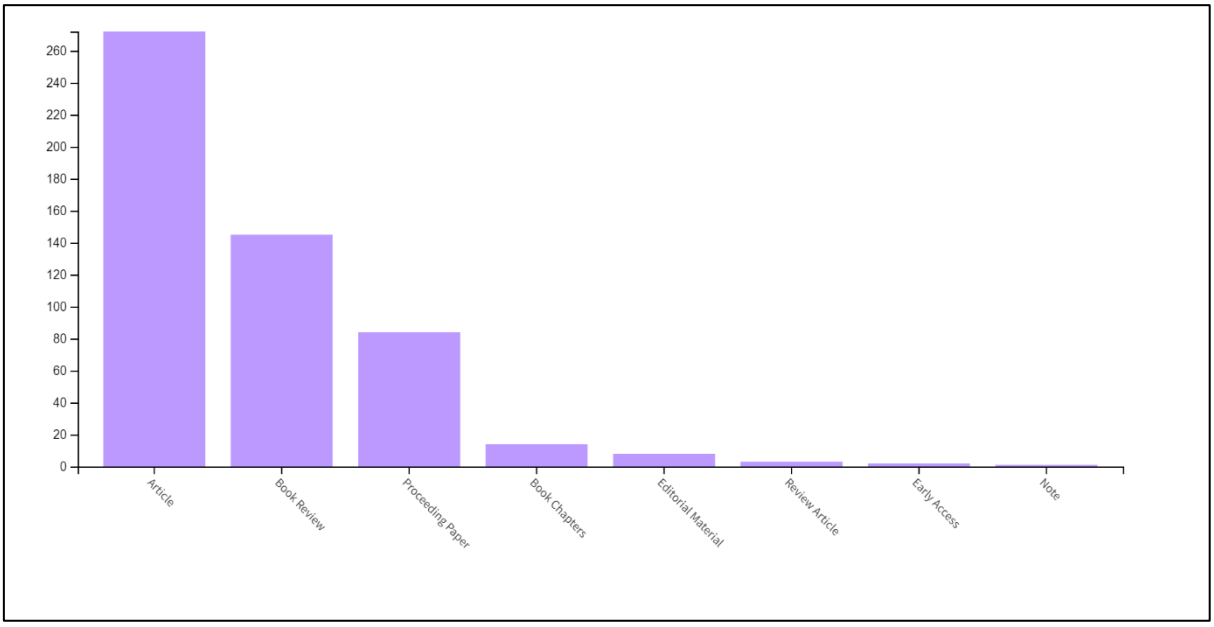

Figure 1: Distribution of types of publications

In Figure 1, the distribution of the studies on German as a foreign language in the WOS database according to the publication types is presented. From this figure, it is understood that the number of articles (f=272, 53.1%), book reviews (f=145, 28.3%) and proceeding papers (f=84, 16.4%) are high among the studies on the relevant subject. The rate and number of other publication types (f=11, 2.2%) is relatively less.

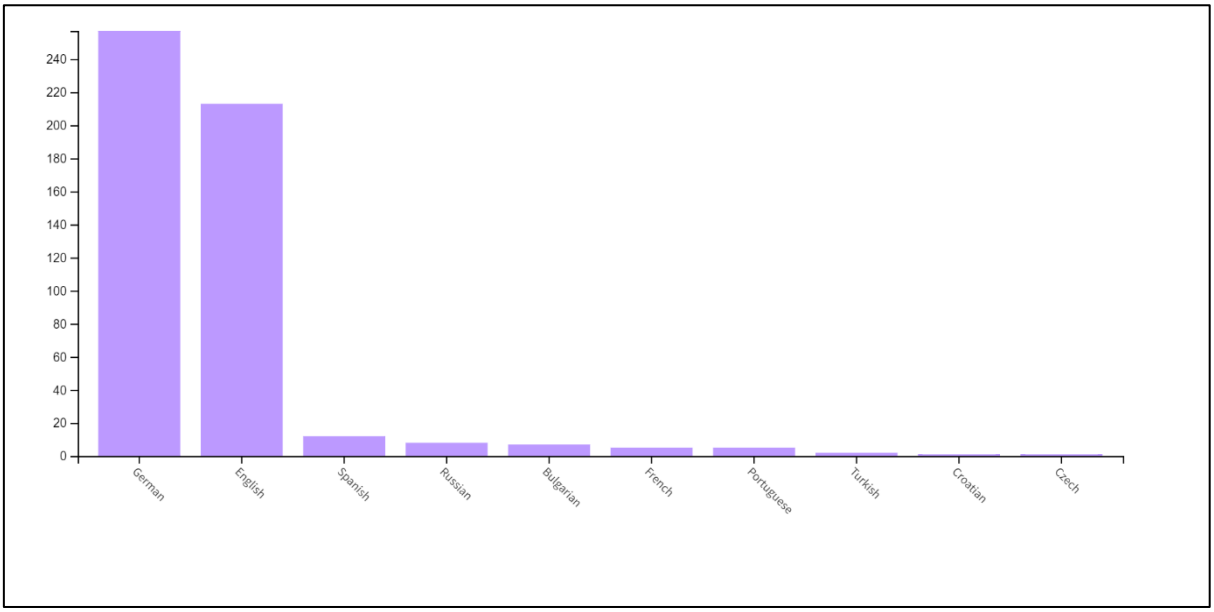

Figure 2: Distribution of languages of publications

As shown in Figure 2, the publications on German as a foreign language from WOS database were mostly written in German (f=257, 50.2%) and English (f=213, 41.6%). Later came studies published in Spanish (f=12, 2.3%), Russian (f=8, 1.6%), Bulgarian (f=7, 1.4%), French (f=5, 1%), Portuguese (f=5, 1%), Turkish (f=2, 0.4%), Croatian (f=1, 0.2%) and Czech (f=1, 0.2%).

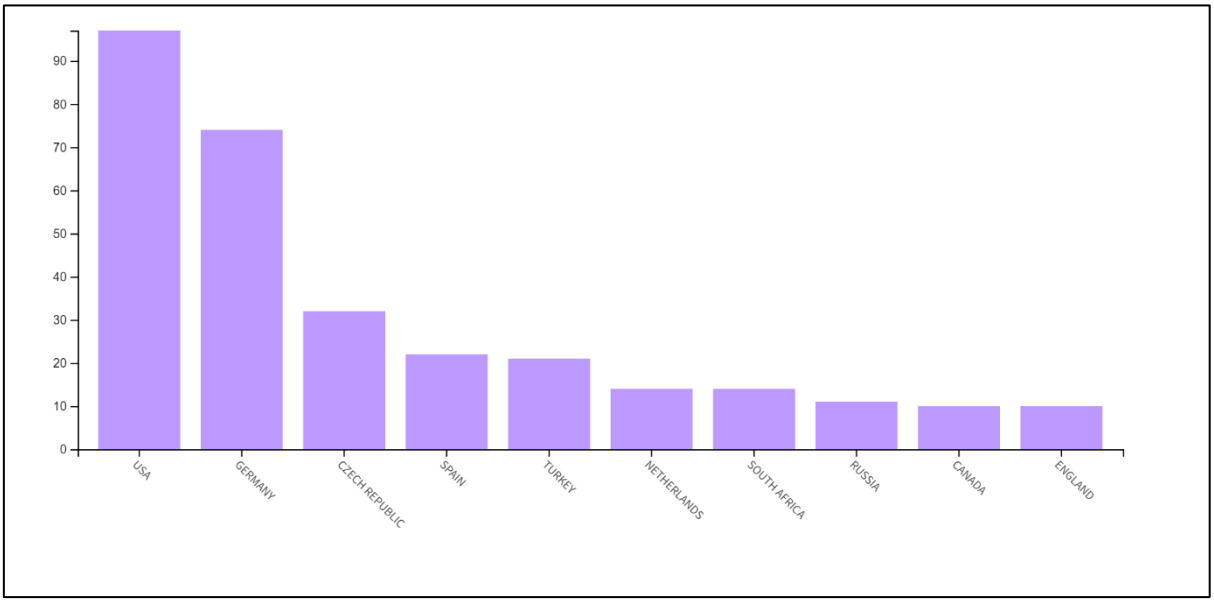

Figure 3: Distribution of publications according to country

According to the data accessed from the WOS database, the situation of the top 10 countries in the number of publications on German as a foreign language is presented in Figure 3. It indicates that America (f=97, 19%) and Germany (f=74, 14.5%) stand out in terms of the number of publications. These countries are followed by Czech

Republic (f=32, 6.3%), Spain (f=22, 4.3%), Turkey (f=21, 4.1%), Netherlands (f=14, 2.7%), South Africa (f=14, 2.7%), Russia (f=11, 2.2%), Canada (f=10, 2%) and England (f=10, 2%).

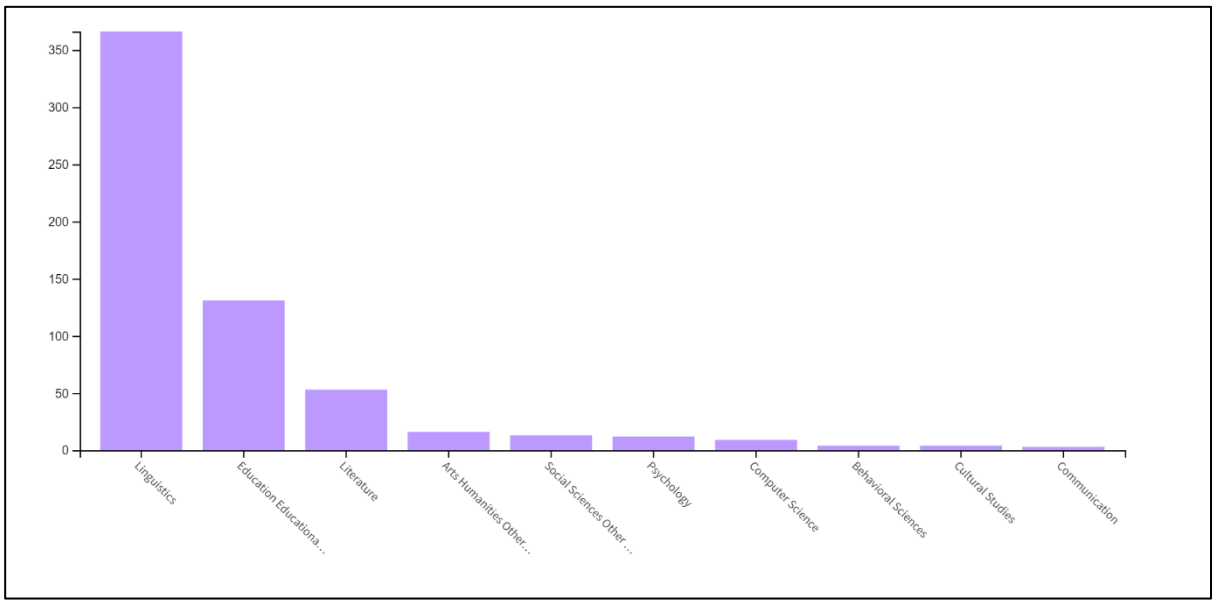

Figure 4: Distribution of publications according to Web of Science research areas

In Figure 4, where the distribution of publications on German as a foreign language according to WOS research areas is presented, the number of publications on linguistics (f=366, 71.5%), educational sciences (f=131, 25.6%) and literature (f=53, 10.4%) draws attention.

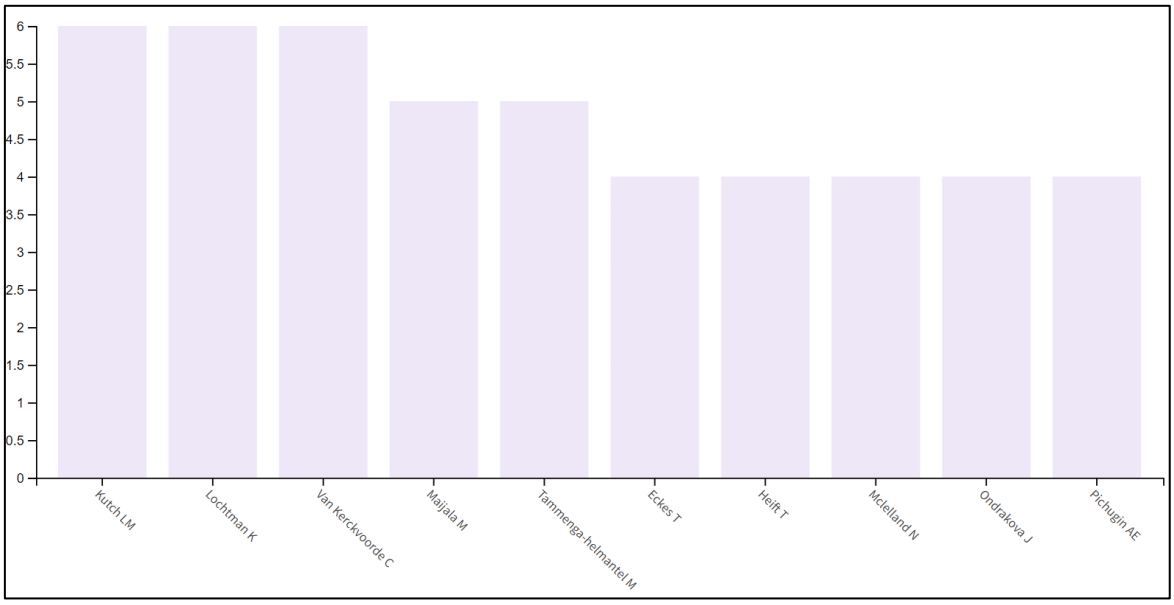

Figure 5: The most prolific authors

Figure 5 includes the authors with the most publications on German as a foreign language in the WOS database. As can be seen from this Figure, the authors with the most publications on the relevant subject in this database are, respectively, L.M. Kutch

(f=6, 1.2%), K. Lochtman (f=6, 1.2%), C. van Kerckvoorde (f=6, 1.2%), M. Maijala (f=5, 1%), M. Tammenga-Helmantel (f=5, 1%), T. Eckes (f=4, 0.8%), T. Heift (f=4, 0.8%), N. Mclelland (f=4, 0.8%), J. Ondrakova (f=4, 0.8%) and A. E. Pichugin (f=4, 0.8%).

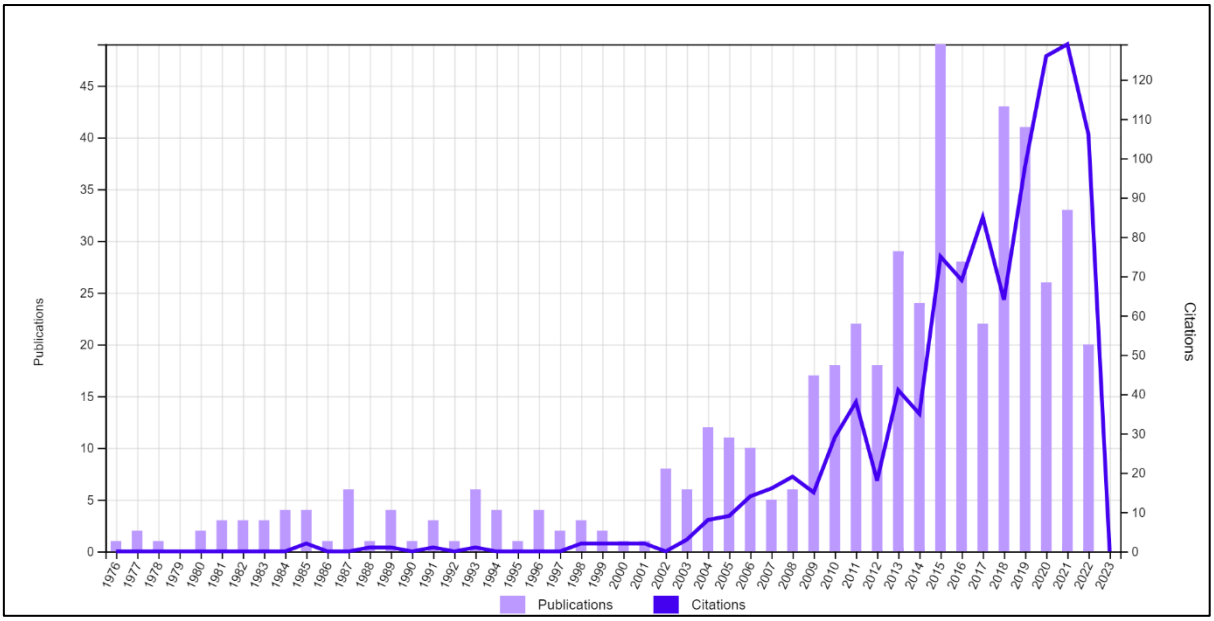

Figure 6: Change in the number of publications and citations between the years 1976-2022

In Figure 6, the change in the number of publications accessed from the WOS database on the subject of German as a foreign language and the number of citations to these publications in the period from 1976 to 2022 is presented. As can be seen in this Figure, the number of publications and citations has experienced fluctuations during the mentioned process. In general terms, it is understood that the number of publications has increased despite fluctuations, especially since 2002, and the number of citations has increased significantly over the years. The Figure 6 shows that the year with the highest number of publications was 2015 (f=49, 9.6%), and the year with the highest number of citations was 2021 (f=129, 12.8%). Furthermore, the total number of citations to 512 publications on German as a foreign language between the years 1976-2022 is 1011, and the average number of citations is 1.98.

As illustrated in Table 1, which contains the most frequently cited articles on the subject of German as a foreign language, G. Kasper's study titled "Participant orientations in German conversation-for-learning" (f=140, 13.9%) published in the "Modern Language Journal" in 2004 stands out as the most cited article. Besides, J.C. De la Campa and H. Nassaji's article published in the journal “Foreign Language Annals” in 2009 with the title “The amount, purpose, and reasons for using L1 in L2 classrooms” (f=64, 6.3%) and D.M. Chun's article published in”CALICO Journal“with the title” Developing intercultural communicative competence through online exchanges" in 2011 (f=59, 5.8%) are noticeable with the number of citations. As can be seen from Table 1, more than half of the total citations to publications on German as a foreign language

were made to the 10 articles in this list. All of these articles are in English and 6 of them were produced by a single author and 4 of them by 2 or more authors.

Table 1: List of the most cited articles

The most cited articles	**Number of citations**	**%**
1. Kasper, G. (2004). Participant orientations in German conversation-for-learning. *Modern Language Journal,* 88(4), 551-567.	140	13,9
2. De la Campa, J. C. & Nassaji, H. (2009). The amount, purpose, and reasons for using L1 in L2 classrooms. *Foreign Language Annals,* 42(4), 742-759.	64	6,3
3. Chun, D.M. (2011). Developing intercultural communicative competence through online exchanges. *CALICO Journal*, 28(2), 392-418.	59	5,8
4. Liebscher, G. & Dailey-O'Cain, J. (2003). Conversational repair as a role-defining mechanism in classroom interaction. *Modern Language Journal*, 87(3), 375-390.	45	4,5
5. Busse, V. (2013). An exploration of motivation and self-beliefs of first year students of German. *SYSTEM*, 41(2), 379-398.	38	3,8
6. Rogers, M. (1987). Learners difficulties with grammatical gender in German as a foreign-language. *Applied Linguistics*, 8(1), 48-74.	38	3,8
7. Vyatkina, N. (2016). Data-driven learning for beginners: The case of German verb-preposition collocations. *RECALL*, 28(2), 207-226.	35	3,5
8. Van de Guchte, M.; Braaksma, M.; (…); Bimmel, P. (2015). Learning new grammatical structures in task-based language learning: The effects of recasts and prompts. *Modern Language Journal*, 99(2), 246-262.	35	3,5
9. Arnold, N. (2009). Online extensive reading for advanced foreign language learners: An evaluation study. *Foreign Language Annals*, 42(2), 340-366.	33	3,3
10. Heift, T. & Rimrott, A. (2008). Learner responses to corrective feedback for spelling errors in CALL. *SYSTEM*, 36(2), 196-213.	32	3,2
Total	519	51,3

One of the points emphasized in the study is the keywords of the publications examined. A large volume of available research documents makes it difficult to analyze important words and keywords in a particular literature. For this reason, it is necessary to get support from scientific tools in order to facilitate the analysis of the outputs of the research area by automatically classifying them according to different topics and to reveal the conceptual structure of the relevant research area. Science mapping tools undertake this important task in the field of bibliometrics (Martínez et al., 2015, pp.257-258). Of these, VOSviewer offers text mining functionality to visualize formation networks of important terms extracted from a scientific literature (Pradhan, 2016, p.22). VOSviewer mapping technique is closely related to the multidimensional scaling technique, but VOSviewer mapping technique gives more satisfactory results for the purpose of creating co-word maps (Van Raan, 2014, p.23).

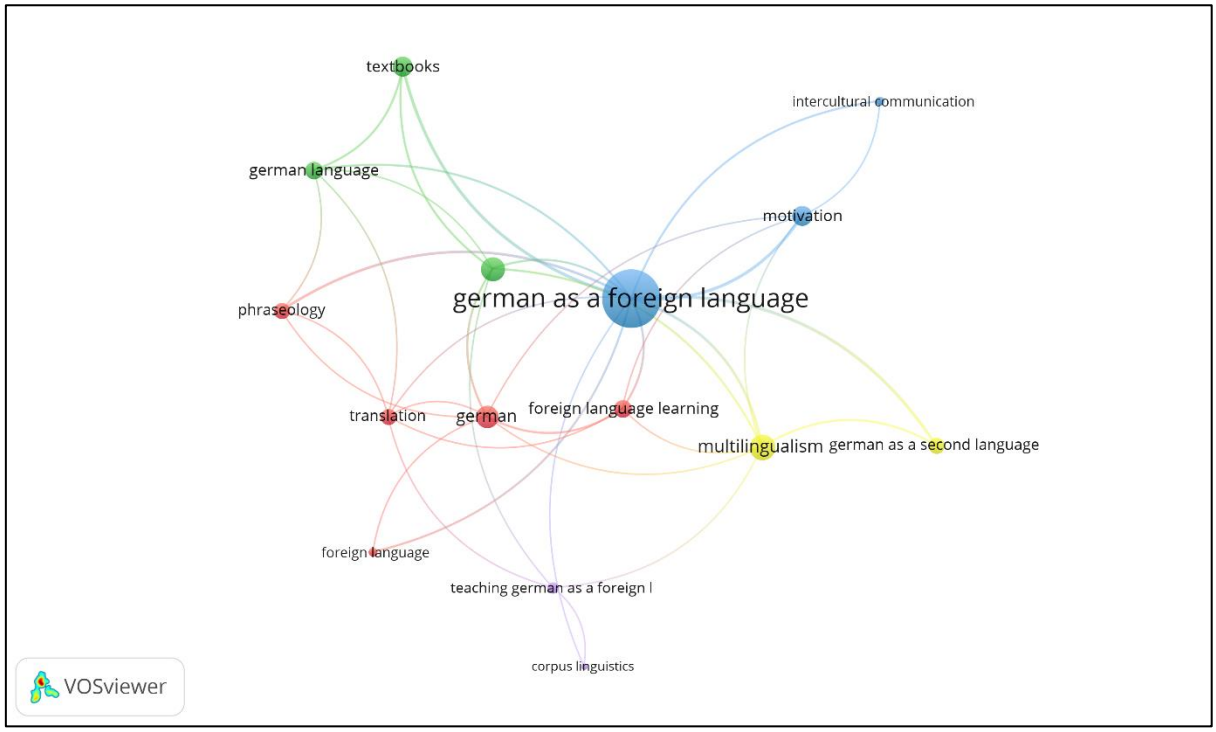

Figure 7: Keywords network map

In the study, the data set obtained from the WOS database was loaded into the VOSviewer program, and the minimum number of occurrences of a keyword in this program was applied as a threshold of 5. It was determined that 15 out of 956 keywords were used in 5 or more numbers. In the map created, the size of the circle indicates the frequency of use of the keywords, the colors of the circles expresses the keywords used together, and the lines between the circles indicate that they are related (Şenbabaoğlu & Parıltı, 2019, p.725). It is understood that a total of 5 clusters have been formed in the network map created about frequently recurring keywords in publications on German as a foreign language. Generally, it can be concluded that the subjects covering the keywords in the network map in Figure 7 were more frequently preferred in the researches relating to the field of German as a foreign language. From this network map, it can be seen that the red cluster contains the keywords "German", "foreign language learning", "phraseology", "translation" and "foreign language". Among them, the keyword with the highest total link strength is “German”. In the green cluster, there are the keywords “foreign language teaching”, “textbook” and “German language”. Among these, "foreign language teaching" is characterized by its the highest total link strength. Since this group of words has a comprehensive dimension, it can be thought that it is frequently used in studies as a keyword. According to the findings on the map, the keywords "German as a foreign language", "motivation", "intercultural" form the blue cluster. In terms of total link strength, "German as a foreign language" is the keyword with the highest values. It is expected that these findings will be reached due to the fact that the search in the WOS database is performed with this keyword. When looking at the yellow cluster, it is seen that the keywords “multilingualism” and

"German as a second foreign language" are present. "Multilingualism" is the keyword with the highest total link strength in this cluster. Finally, the keywords "teaching German as a foreign language" and "corpus linguistics" make up the purple cluster. The keyword with the highest total link strength among them is "teaching German as a foreign language".

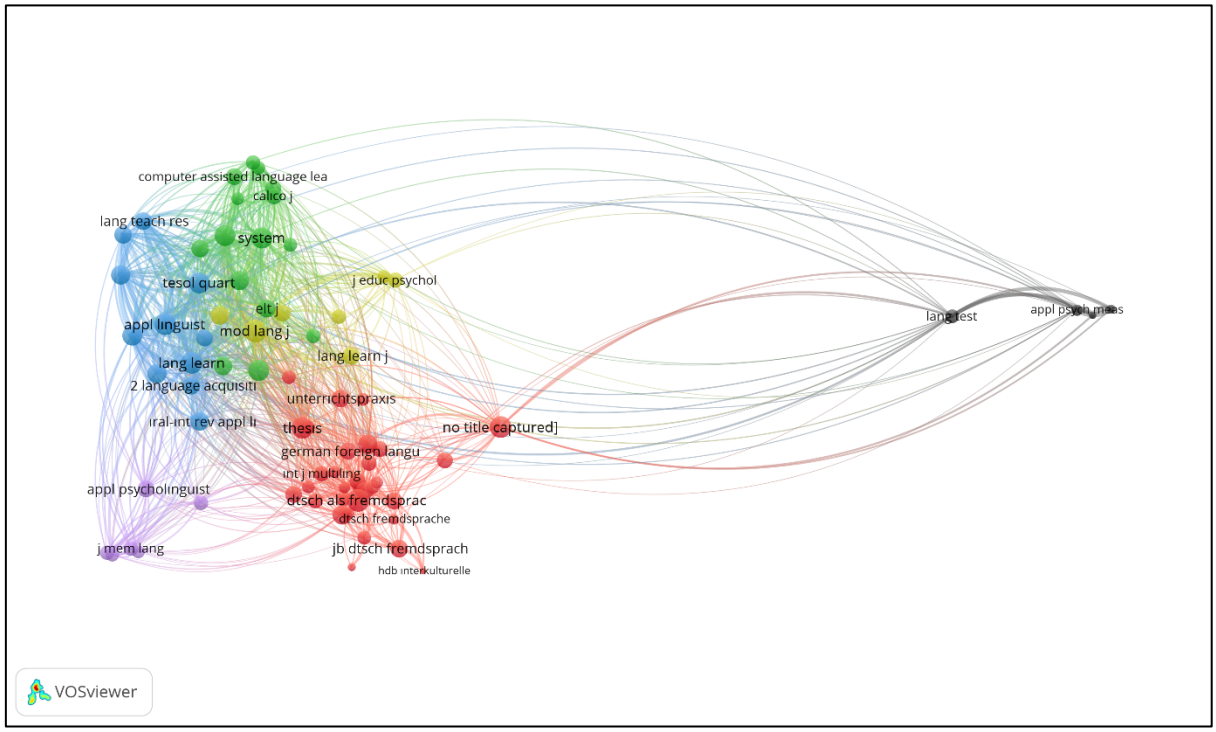

Figure 8: Co-citation network map of journals

In Figure 8, the co-citation network map of journals on German as a foreign language created in the VOSviewer program is presented. The minimum number of citations of a document was chosen as "10", and a network map was created for 75 of the 6156 cited journals with this threshold value. It was determined that six clusters were formed in these network map in question, where the citation link relationship of the journals with each other was visualized. Besides, based on data from the website "www.scimagojr.com", the journals with the highest total link strength in these clusters were mentioned in which quarter of the division they were in 2021, the impact factors, and the impact factor rankings between 1104 journals in the linguistics and language category. According to this, the "Modern Language Journal", which has the highest total link strength in the yellow cluster of the map, is in the Q1 quarter. This journal, which has an impact factor of 6.24, ranks 3. in terms of impact factor. The journal "Language Learning", which stands out with its total link strength in the blue colored cluster, located in the Q1 quarter and has an impact factor ranking of 6 with an impact factor of 5.65. The journal "Bilingualism: Language and Cognition" with the highest total link strength in the purple cluster is in Q1 quarter. This journal with an impact factor of 4.02 is in the 19. place according to the impact factor ranking. Looking at the black cluster, it

is seen that the journal with the highest total link strength is "Language Testing". The impact factor of this journal in the Q1 quarter is 3.16 and its impact factor ranking is 35. "Foreign Language Annals" is the journal with the highest total link strength in the green cluster. This journal, which has an impact factor of 2.70 and is in the Q1 quarter, ranks 51. in terms of impact factor. In the red cluster, "Deutsch als Fremdsprache" is the journal with the highest total link strength. The impact factor of this journal, which is included in the Q3 quarter, is 0.08 and the impact factor ranking is 806.

In the study, a co-citation network map of authors was also created by applying science mapping. A bibliographic coupling link is established by the authors of the articles in focus, while the co-citation link is established by the authors citing to the works under review (Zupic & Cater, 2015). In this sense, co-citation network map of authors created for the subject of German as a foreign language is presented below:

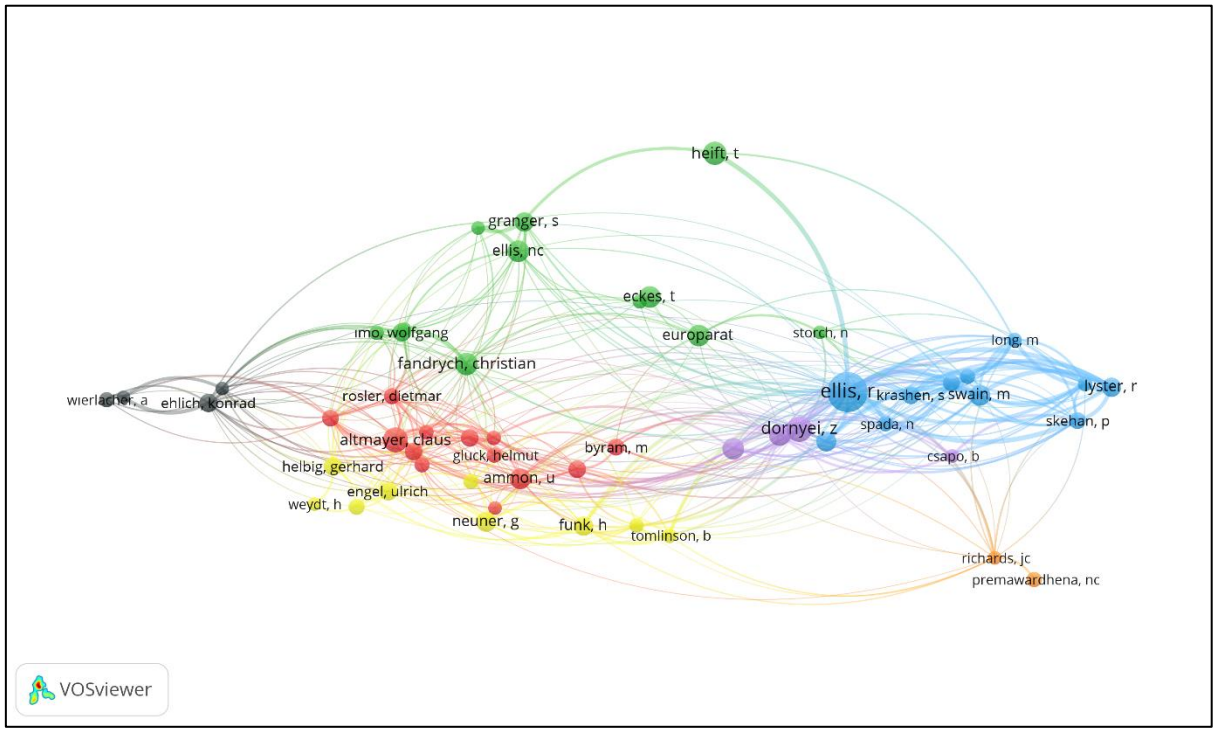

Figure 9: Co-citation network map of authors

The data obtained from the WOS database were loaded into the VOSviewer program, the minimum number of citations was selected as "10", and a co-citation network map of authors was created for 55 of 6567 authors with this threshold value. It has been determined that the relationships between the cited authors in this network map in Figure 9 form 7 clusters. When looking at the blue cluster in that map, it is understood that the author with the highest total link strength is R. Ellis. This author's article titled "Second language acquisition, teacher education language pedagogy", published in the journal "Language Teaching" in 2010, which focuses on studies on language acquisition and teaching, can be recommended to researchers and readers related to foreign language teaching and teacher education. In the purple cluster, Z.

Dornyei, who focuses on psycholinguistic studies with subjects such as motivation and language acquisition, comes to the forefront. The article titled ”Attitudes, orientations, and motivations in language learning: Advances in theory, research, and applications“ published in the journal ”Language Learning" in 2003 is one of the remarkable works of this author. When the yellow cluster is taken into consideration, it is seen that G. Neuner is the author with the highest total link strength. Neuner, who has many studies on different dimensions of the field of German as a foreign language, is among the recognized and well-known names of this field. Additionally, the author with the highest total link strength in the red cluster of the map presented is C. Altmayer, who mainly focuses on culture-oriented studies in the field of German as a foreign language. The publication titled “Kultur als Hypertext: Zu Theorie und Praxis der Kulturwissenschaft im Fach Deutsch als Fremdsprache” published in 2004 can be shown as an example of this author's prominent works. In addition to this, T. Heift, who focuses on foreign language learning, its cognitive dimension, computer and internet studies in foreign language learning, is the author with the highest total link strength in the green cluster. The article titled "Corrective feedback and learner uptake in CALL", published in the journal "ReCALL" in 2004, is among the well-known works of this author. K. Ehlich, known for his work on linguistics in the black cluster, and N. C. Premawardhena, in the orange cluster, are authors with the highest total link strength.

4. Conclusion

Scientific publications fulfill many functions such as presenting the scientific information produced to the relevant readership, participating in the scientific communication process, and meeting the academic promotion criteria. By examining these, data on the current situation in the relevant field can be accessed. Databases, which are one of the reflections of technological progress on science, contribute to the global inclusive nature of studies in this direction.

The majority of the studies on German as a foreign language in the WOS database are in the type of articles. Among the reasons for this, it can be listed that the journals in which the articles are published tend to continue their publishing activities in a digital environment, that this trend is less in other types of publications, and that journals easily integrate articles from the digital publishing platform into databases.

According to the results of the study, the publications on German as foreign language in the WOS database are mainly aimed at linguistics, education and literature. WOS is a database where publications are indexed internationally and accepted by scientific circles. The recognition of the authors who are in the forefront with the number of publications in this database will be able to inspire young researchers who are conducting scientific studies in the field of German as a foreign language to determine academic direction. Based on this, a list has been created and shared in which the authors with the most publications in the field are presented. Another issue

emphasized in the study is how the number of publications on German as a foreign language and the number of citations to them has changed.

One of the results that can be reached in this context is that the number of publications in the field increased in fluctuations after 2002, and the number of citations increased with the mass growth of the publications. At this point, there are factors such as facilitating access to information and scientific resources thanks to the developments in science and technology, the spread of advanced education, the increasing number of universities and academicians encouraging the tendency to graduate education, and these realities triggering the increase in the production of scientific publications on German as a foreign language. Along with these, keeping more publications in view in scientific studies can be considered as the main reasons for increasing the number of citations in order to be able to solidly grounding them.

The vast majority of publications on German as a foreign language scanned in the WOS database are written in German and English. The high number of publications in German is due to the fact that this language is at the center of the topic of German as a foreign language. The fact that the articles published in English are in the second place numerically after German can be associated with the tendency of the authors to reach as many readers and researchers as possible and to share the scientific knowledge they produce. In terms of the number of publications, the United States, Germany and the Czech Republic are in the first places.

In the study, a list of the most frequently cited articles on German as a foreign language was also created. It was seen that all 10 articles in the list were in English. Although the number of German publications is high, the fact that the entire list of the most frequently cited articles consists of English studies shows that there is a tendency to cite more English publications in the article type. This tendency should be considered as a situation that lead authors to publish their articles in English. According to the findings, more than half of the total citations to publications on German as a foreign language were made to10 articles in this list. Therefore, it is possible to say that the impact of these articles on the studies in the field of German as a foreign language is high.

In the study, relationships between publications on the subject of German as a foreign language were revealed by applying science mapping method. In this context, firstly, the keywords used in the publications related to the relevant subject were analyzed. The keywords in question are directly related to the topic under consideration, so they also indicate their research orientation. Considering the frequently used keywords of the reviewed publication, it is understood that the topics of multilingualism, foreign language teaching, motivation, textbook, foreign language learning, German language, German as a second foreign language, phraseology, translation, teaching German as a foreign language, foreign language, intercultural communication, corpus linguistics are more researched in these publications.

In addition, in this study, a common citation network map of journals that include publications on German as a foreign language is presented. In the clusters

found in this map, it was seen that the journals "Deutsch als Fremdsprache", "Modern Language Journal", "Language Learning", "Foreign Language Annals", "Bilingualism: Language and Cognition" and "Language Testing" had the highest total link strength. The fact that many of these journals are in the Q1 quarter, have a high impact factor and are at the top of the impact factor ranking indicates that they meet the criteria that earn respect in the science world. The high number of citations to the studies in these journals is evidence that authors consider the studies in the journals that meet these criteria in order to make qualified publications. Besides, taking into account the studies published in these journals in the production of articles can also be perceived as a sign that the relevant journals have proven their qualifications and have been accepted by researchers. Therefore, choosing these journals for sharing the scientific information produced on the subject of German as a foreign language will be a perspective that can increase the visibility of the relevant study and make it possible to share the produced information with more readers and researchers. The fact that the 5 studies included in the list of the most cited articles created in this study were published in 2 of these journals is a supporting indicator. These journals mentioned above are scanned in the citation indexes required for academic promotion. When these findings are considered together, it can be concluded that adding the journals in question to the reading lists of the researchers engaged in scientific activities in the field of German as a foreign language and adopting the aim of publishing their publications on these journal platforms will be an approach that can increase their effectiveness in the field and the quality of their publications.

Finally, co-citation network map of authors was created in the study through science mapping. It was determined that the authors who stand out with their total link strength in the clusters in the said network map are R. Ellis, Z. Dornyei, G. Neuner, C. Altmayer, T. Heift, K. Ehlich and N.C. Premawardhena. Considering the works of these authors in the literature review and publication reading processes will be able to contribute to researchers in the production of quality publications.

Conflict of Interest Statement

The author declares no conflicts of interest.

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References

Ball, R. & Tunger, D. (2005). *Bibliometrische Analysen - Daten, Fakten und Methoden*. Schriften des Forschungszentrums Jülich, Band 12.

Cañas-Guerrero, I., Mazarrón, F. R., Calleja-Perucho, C. & Pou-Merina, A. (2014). Bibliometric analysis in the international context of the "Construction & Building Technology" category from the Web of Science database. *Construction and Building Materials*, 53, 13-25.

Cobo, M. J. (2015). A relational database model for science mapping analysis. *Acta Polytechnica Hungarica,* 12(6), 43-62.

Çetinkaya Bozkurt, Ö. & Çetin, A. (2016). Girişimcilik ve Kalkınma Dergisi'nin bibliyometrik analizi. *GKD*, 11(2), 229-263.

Dönbak, E. R. (2020). Kültür ve turizm araştırmalarının bilim haritalama teknikleri ile bibliyometrik analizi. *Journal of Travel and Tourism Research*, 17, 52-78.

Fırat, S., Kurutkan, M. N. & Orhan, F. (2018). Sağlık politikası konusunun bilim haritalama teknikleri ile analizi. M. N. Kurutkan ve F. Orhan (Ed.), *Sağlık Politikası Konusunun Bilim Haritalama Teknikleri ile Analizi İçinde* (s.28-73). İKSAD Publishing House.

Gürler, G. (2022). Bibliyometrik araştırmalarda ilgili literatüre ilişkin veri setinin oluşturulma süreci. O. Öztürk ve G. Gürler (Ed.), *Bir Literatür İncelemesi Aracı Olarak Bibliyometrik Analiz İçinde (3. basım)* (s.53-66). Ankara: Nobel Akademik Yayıncılık.

https://www.scimagojr.com (accessed 29 January 2023).

https://www.webofscience.com (accessed 26 December 2022).

Karagöz, B. & Şeref, İ. (2020). Yazma becerisiyle ilgili makaleler üzerine bir inceleme: Web of Science veri tabanında eğilimler. *Ana Dili Eğitimi Dergisi*, 8(1), 67-86.

Koç, A. (2022). Bibliyometrik araştırmalarda ilgili literatüre ilişkin veri setinin oluşturulması: WoS ve Scopus veri tabanları üzerinden uygulamalar. O. Öztürk ve G. Gürler (Ed.), *Bir Literatür İncelemesi Aracı Olarak Bibliyometrik Analiz İçinde (3.basım)* (s.67-94). Ankara: Nobel Akademik Yayıncılık.

Kurutkan, M. N. & Orhan, F. (2018). Bilim haritalama, bibliyometrik analiz ve kitap ile ilgili genel hususlar. M. N. Kurutkan ve F. Orhan (Ed.), *Sağlık Politikası Konusunun Bilim Haritalama Teknikleri ile Analizi İçinde* (s.2-12). İKSAD Publishing House.

Martínez, M. A., Cobo, M. J., Herrera, M., & Herrera-Viedma, E. (2015). Analyzing the scientific evolution of social work using science mapping. *Research on Social Work Practice*, 25(2), 257-277.

Okubo, Y. (1997). *Bibliometric indicators and analysis of research systems: Methods and examples*. Paris: OECD.

Orhan, U. (2022). Bibliyometrik araştırmalarda kullanılan paket programlar: Bir karşılaştırma. O. Öztürk ve G. Gürler (Ed.), *Bir Literatür İncelemesi Aracı Olarak*

Bibliyometrik Analiz İçinde (3. basım) (s.111-123). Ankara: Nobel Akademik Yayıncılık.

Öztürk, A. O. & Özsoy, P. (2022). Bibliographische Erfassung der Online veröffentlichten Beiträge in der Diyalog-Zeitschrift des Germanistenverbandes im Zeitraum 2013-2020. In: S. Uysal Ünalan (Hrsg.), *Ege Germanistik Forschungen zur deutschen Sprache, Literatur und Kultur Band 1* (S.161-192). İzmir: Ege Üniversitesi Yayınları.

Pradhan, P. (2016). Science mapping and visualization tools used in bibliometric & scientometric studies: An Overview. *INFLIBNET Newsletter*, 23 (4), 19-33.

Pritchard, A. (1969). Statistical bibliography or bibliometrics. *Journal of Documentation*, 25, 348-349.

Şenbabaoğlu, E. & Parıltı, N. (2019). Tüketici yenilikçiliğinin görsel haritalama tekniğiyle bibliyometrik analizi. *Üçüncü Sektör Sosyal Ekonomi Dergisi*, 54(2), 713-730.

Şeref, İ. & Karagöz, B. (2019a). Türkçe eğitimi akademik alanına ilişkin bir değerlendirme: Web of Science veri tabanına dayalı bibliyometrik inceleme. *Dil Eğitimi ve Araştırmaları Dergisi*, 5(2), 213-231.

Şeref, İ. & Karagöz, B. (2019b). Scopus veri tabanına dayalı bibliyometrik değerlendirme: Mevlâna Celâleddin Rumî üzerine yapılan araştırmalar. *RumeliDE Dil ve Edebiyat Araştırmaları Dergisi*, (14), 298-313.

Şimşir, İ. (2022). Bibliyometri ve bibliyometrik analize ilişkin kavramsal çerçeve. O. Öztürk ve G. Gürler (Ed.), *Bir Literatür İncelemesi Aracı Olarak Bibliyometrik Analiz İçinde* (3. basım) (s.7-31). Ankara: Nobel Akademik Yayıncılık.

Tabak, A., Barbak, A. & Öztürk, T. (2016). Kamu politikası disiplininin kavramsal gelişimini bibliyometri kullanarak anlamak mümkün mü? 1980-2014 döneminin bilimsel haritalama analizi. *LAÜ Sosyal Bilimler Dergisi*, 7 (2), 117-143.

Taşkın, Z. & Çakmak, T. (2010). Başlangıcından bugüne Bilgi Dünyası Dergisi'nin bibliyometrik profili. *Bilgi Dünyası*, 11 (2), 332-348.

Tok, A. (2022). Bilgi Yönetimi Dergisi'nin betimsel analizi. *Bilgi ve Belge Araştırmaları Dergisi*, 17, 59-80.

Van Eck, N. J. & Waltman, L. (2010). Software survey: VOSviewer, a computer program for bibliometric mapping. *Scientometrics*, 84(2), 523-538.

Van Eck, N. J. & Waltman, L. (2017). Citation-based clustering of publications using CitNetExplorer and VOSviewer. *Scientometrics,* 111(2), 1053-1070.

Van Eck, N. J., Waltman, L., Dekker, R. & Van den Berg, J. (2010). A comparison of two techniques for bibliometric mapping: Multidimensional scaling and VOS. *Journal of the American Society for Information Science and Technology*, 61 (12), 2405-2416.

Van Raan, A. F. J. (2014). Advances in bibliometric analysis: research performance assessment and science mapping. *Bibliometrics Use and Abuse in the Review of Research Performance,* 87, 17-28.

Wallace, D. P. (1989). Bibliometrics and citation analysis. In: J. N. Olsgaard (Ed.), *Principles and Applications of Information Science for Library Professionals* (pp.10-26). Chicago: American Library Assoc.

Wang, B., Pan, S. Y., Ke, R. Y., Wang, K. & Wei, Y. M. (2014). An overview of climate change vulnerability: A bibliometric analysis based on Web of Science database. *Natural Hazards,* 74(3), 1649-1666.

Yeşiltaş, A. (2021). Defansif tıbbın bilimsel haritalama yöntemiyle analizi. *Cumhuriyet Üniversitesi Sağlık Bilimleri Enstitüsü Dergisi,* 6(1), 7-16.

Yu, Y., Li, Y., Zhang, Z., Gu, Z., Zhong, H., Zha, Q., Yang, L., Zhu, C. & Chen, E. (2020). A bibliometric analysis using VOSviewer of publications on COVID-19. *Annals of Translational Medicine*, 8(13), 816.

Zupic, I. & Cater, T. (2015). Bibliometric methods in management and organization. *Organizational Research Methods*, 18(3), 429-472.