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Research Article

Instagram Use in Education: Trends, Themes and Bibliometric Findings

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ABSTRACT

Today, social media tools are increasingly playing a role in learning processes. Instagram, which is a visual and interactive tool in particular, stands out as one of the tools that support learning. Thus, assessing the state of Instagram studies in educational research today helps to imagine the future. Therefore, in this study, studies published on the use of Instagram in education were examined using the bibliometric analysis method. In the study, 836 academic studies published between 2015-2024 in the Web of Science (WoS) database were analyzed. The findings obtained show that research in this field has increased rapidly, especially since 2020. It has been determined that studies are focused on the use of Instagram in higher education as well as in education such as medical education and language learning. In addition, the USA stands out as the country with the most publications in articles published on the use of Instagram in education, followed by Spain and the UK. In addition to these findings, the "Cureus Journal of Medical Science" stands out as a journal in terms of the frequency of published articles, while the "University of Barcelona" stands out in terms of institutions. On the other hand, although "Li JW" stands out as the most published author among the authors who published articles on the use of Instagram in education, "Elizabeth R. Lyden" stands out as the most cited author and the author who is in a central position with extensive collaboration. The research findings were evaluated in the context of the literature and some suggestions were made.

1. INTRODUCTION

Today, educational technologies have become one of the elements that reshape learning processes [85]. This digitalization process in education transforms traditional teaching methods and makes learning processes more interactive [1]. Therefore, social media platforms are at the center of this process and provide students with access to information, sharing and interaction [2-4]. In this way, these platforms can allow students to actively and creatively participate in learning processes [86]. Because, according to the Constructivist approach, the development of virtual learning can be facilitated by developing materials on educational devices or organizing media with the use of social networks in education [5]. In addition, [6] have drawn attention to the role of social media as a learning environment that provides potential contributions to entertainment, satisfaction, professional and personal gains and success. In this context, Instagram, one of the widely used social media platforms, provides an interactive and dynamic learning environment for students and educators and allows the enrichment of the learning process [7].

Instagram can be defined as an application that allows several users to come together in a community to interact with each other or allows a user to take, edit and share photos with other users [8, 9]. Instagram is a social network that has evolved significantly since its establishment only ten years ago [10] and stands out as the third most important social network platform growing with 2 billion monthly active users in 2024 [11]. In addition, according to the report published by We Are Social in early 2024, the number of social media users in our country constitutes 66.8% of the country's population [12], while DATAREPORTAL revealed in its report published in 2025 that 85.5% of these users are Instagram users [13]. Due to this situation, it can be said that the number of Instagram users in our country is a considerable number. Instagram [14], one of the most used networks worldwide, where users share photos or short videos that can be accompanied by up to 2,200 characters, includes analysis of audiences, profiles and users, brands, companies and marketing, political communication and education [10]. In addition, Instagram introduced "reels", short-form videos that can be uploaded or created within the application, in August 2020 [15] and announced that all

uploaded videos will be converted to reels as of July 2022 [16]. This means that users will be able to create their own videos to a limited extent using videos uploaded to reels [17]. These videos are categorized differently from images and multimedia posts by the Instagram algorithm [18]. It can be said that these opportunities provided by Instagram in the context of video content can provide important opportunities for users in educational environments [19, 87]. In addition, Instagram offers easily accessible and engaging platforms for educational content [19]. The visually appealing and interactive nature of these platforms can attract students' attention and motivate them to learn educational materials [20]. In addition, Instagram's image and video editing tools can also be used to make educational posts [21]. Therefore, it can be said that Instagram is an important tool that can be used to facilitate educational processes [88].

Numerous studies have examined how Instagram use affects learning and how to address related issues. For example, [22] describes Instagram as a valuable teaching tool that can increase academic productivity, engagement, motivation, and performance. Therefore, the literature indicates that Instagram plays an important role both for social interaction and in developing and improving the quality of learning in the digital age. Instagram is seen to support language learning [23-28] and communication skills [29, 30]. In the study conducted by Maierová, Instagram was used to support English language teaching and it was seen that Instagram supported language learning, especially positively affecting student motivation and writing skills [28]. In the study conducted by González-Mohíno et al., it was concluded that the use of Instagram in the learning process increased students' motivation, communication, and engagement [30]. Al-Ali investigated the integration of Instagram as a mobile learning tool in foreign language classes, finding that it provided unique opportunities to create personalized learning experiences for language learners and was highly effective in creating a strong sense of community among students [31]. [32] stated that Instagram can be used as a teaching tool in language education with creative classroom activities, [33] while Instagram can be used to enhance English language learning in addition to formal teaching. [34] emphasized that Instagram offers unique opportunities for immersive language learning and can transform educational practices, especially in areas with limited resources.

Instagram is also frequently used in the learning process of health professionals [5, 35-37]. In their study, Gutiérrez-Marín and colleagues used Instagram as a teaching tool in Orthodontics and Pedodontics courses [5]. Different Instagram accounts were created for each course and supportive information was shared on these accounts. As a result of this study, it was determined that using Instagram made the learning process more dynamic and increased student motivation. In the study of Hussain and colleagues, how the posts made using the #anatomynotes tag on Instagram were used in anatomy education and how they changed over time [36]. The study revealed that Instagram is a powerful tool especially for visual learning and that students actively participate in this area. [38] It was stated that Instagram can provide benefits to medical and dental anatomy education, but that limitations such as passive learning should be taken into consideration.

The use of Instagram as a supportive tool in higher education can increase student learning outcomes and participation [39]. The use of Instagram in education is also noteworthy in terms of increasing students' digital literacy [89-90]. It is of great importance for individuals growing up in the digital age to gain critical thinking skills and to produce information rather than just consuming it [91-92]. In this context, Instagram helps students gain critical thinking skills and produce original content by supporting their digital literacy [40, 41]. The use of social media platforms such as Instagram in education enables students to develop their digital identities, create educational content, share their own projects, and gain different perspectives by examining their peers' work [40]. Comparative analysis of the literature review is presented in Table 1.

TABLE I COMPARATIVE ANALYSIS OF LITERATURE REVIEW

Study	Purpose	Method	Type of Analysis	Main Findings
[5]	Dentistry education	Applied qualitative method	Descriptive statistics + Chi-square	Students who interacted heavily with the Story feature found Instagram useful.
[22]	Opinions on social media	Survey-based quantitative research	Descriptive analysis	Students found social media useful for communication and motivation.
[28]	Use of Instagram in English classes	Mixed method	Survey + observation + interview	Writing and creativity improved.
[29]	Measuring Instagram's effect on speaking skills	Quantitative case study	Interactional model analysis	66% improvement observed, participation and motivation increased.
[30]	Analyzing Instagram's effect on student satisfaction	Quantitative study	Structural equation modeling	Instagram had a positive effect in all dimensions.
[31]	Testing Instagram's suitability as a mobile learning tool	Action research	Reflective diary + SAMR model	Although initial reluctance was observed, creative production increased over time.
[33]	Investigating Instagram's effect on EFL students' language development	Mixed method	Survey + experimental t-test + interview	Instagram improved writing skills, vocabulary, and self-confidence. Positively contributed to academic achievement.
[36]	Analyzing the use of the #anatomynotes tag in medical education	Content analysis	Time-based content analysis	It was found to be a powerful tool supporting visual learning.
[37]	Evaluating the effect of Instagram in hematology-oncology education	Cross-sectional quantitative study	Descriptive statistics + t-test	Humorous and clinical content was effective, interaction increased.
[38]	Evaluating the role of Instagram in medical and dental anatomy education	Literature review + Instagram account analysis	Interpretive content analysis + table-based user and content comparison	Visuality and the use of hashtags provided an advantage.

It can be said that Instagram has gone beyond being a socialization tool like other technologies and has become widespread in every area of life [93]. Therefore, studies on the use of Instagram in education show the role of this platform in supporting learning processes and its increasing acceptance [19, 39, 42, 43]. Due to this situation, it can be thought that the use of Instagram in education has become an interesting field of study and has increased the tendency to evaluate its impact in educational sciences [94]. However, studies conducted in this field should be examined from a broad perspective and it should be determined in which areas more research is needed [30, 95]. Because studies conducted have stated that bibliometric analysis studies are needed to develop a more comprehensive understanding of the effects of social media use in education [44-46]. In addition, in future studies, database searches should be expanded with newly determined keywords and existing technologies in education should be investigated [47]. Therefore, when previous studies are examined; although the trends in educational research on social media are examined with the bibliometric analysis method [46, 48, 49], it can be said that bibliometric research is needed specifically for Instagram. Because trend studies are considered useful in terms of revealing the current situation in the field, directing new research and determining changes in certain time intervals [50]. Therefore, it can be stated that this study has the potential to provide valuable contributions to the development of technology-based education using Instagram in the future, which has not yet been discovered. Therefore, this study aimed to determine the trends of the studies conducted on the use of Instagram in education by examining them through bibliometric analysis and to reveal which topics and researchers are prominent. It is expected that the findings obtained within the scope of the research will contribute to a better understanding of the potential use of Instagram in education by both educators and researchers and to the development of effective usage strategies. In line with the purpose of the research, the following questions were sought:

1. What is the distribution of articles published on Instagram use in education by year?

2. What is the distribution of articles published on Instagram use in education by country?

3. What is the distribution of articles published on Instagram use in education by journals?

4. What is the distribution of articles published on Instagram use in education by authors?

5. What is the distribution of articles published on Instagram use in education by co-authorship status?

6. What is the distribution of authors who published articles on Instagram use in education by citation networks?

7. What is the distribution of countries by citation in articles published on Instagram use in education?

8. What is the distribution of institutions by citation in articles published on Instagram use in education?

9. What is the distribution of articles published on Instagram use in education by keywords used?

2. METHODS

Within the scope of the research, the articles selected by following the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta Analyses) flow diagram [51] were performed using the bibliometric analysis method. Bibliometric analysis is a widely used approach to update the progress of published publications in the field [52]. In other words, the bibliometric analysis method can be expressed as the use of statistical and quantitative analysis methods to determine the general characteristics of studies published in a specific field or subject [54]. It can be said that this method allows visualization by looking at the studies in the literature from a broad perspective. On the other hand, thanks to the bibliometric mapping analysis, the scientific flow of institutions, researchers and studies on the determined subject can be followed [54].

In performing bibliometric analyses, some researchers use various software such as Bibliometrix [96], CitNetExplorer [97], CiteSpace [99], VisualBib [98], and VOSviewer [100]. However, in this study, we chose VOSviewer because it is user-friendly, freely available, has extensive documentation and numerous online tutorials, and receives constant updates from its developers. VOSviewer can be accessed at https://www.vosviewer.com/ . In this study, the Web of Science (WoS) database was used because it provides easy access to databases and citation data [55] and is one of the most widely used databases [56]. WoS was chosen because it is considered a complete and comprehensive data source and contains reliable and high-quality publications [57]. In addition, WoS offers an independent and comprehensive editorial process, as well as the ability to provide a wide range of data from various fields and a reliable citation network thanks to its integration with Clarivate Analytics [58].

2.1. Data Collection

In line with the purpose of the research, the WoS query text in Figure 1 was used on 13.02.2025 in order to access relevant studies from the WoS database.

Instagram and education (Topic) or **"Instagram for learning"** (Topic) or **"educational technology Instagram"** (Topic) or **"teaching with Instagram"** (Topic) or **"Instagram-based learning activities"** (Topic) and **Article** (Document Types) and **English** (Languages) and **2024** or **2023** or **2022** or **2021** or **2020** or **2019** or **2018** or **2017** or **2016** or **2015** (Publication Years) and **Open Access**

Figure 1 Search Parameters Used to Access Articles in WoS

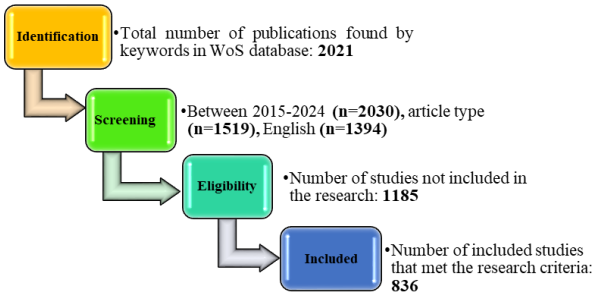

Figure 2. PRISMA Flow Diagram Followed in the Research of the Reviewed Articles

In the selection process of the articles accessed from the WoS database using the query text in Figure 1, the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta Analyses) flow diagram [51] was used. Therefore, the studies accessed from the WoS database were filtered in line with the purpose of the research. Therefore, when selecting the articles

to be included in the analysis, articles with full-text access published in English between 2015 and 2024 were taken into consideration. The PRISMA flow diagram followed during the data collection process of the research is presented in Figure 2.

2.2. Analysis of Data

Bibliometric analysis is a widely used approach to update the progress of published publications in the field [52]. Initially, articles on Instagram usage in education were scanned from the WoS database for bibliometric analysis and the obtained data were examined with descriptive analysis. Then, the obtained articles were filtered according to the purpose of the research and a suitable data set was obtained for bibliometric analysis. The data set was reviewed separately by the researchers in the Microsoft Excel 2016 program and it was decided that all data were valid and usable. Bibliometric data of 836 publications examined in the research were analyzed using VOSviewer software. This program, developed by [59], is a free software that allows creating numerical and visual maps. The reason for choosing this software is that VOSviewer is quite functional for bibliometric analysis, both in functional visualization [60] and in directly viewing and interpreting images quantitatively [59]. On the other hand, the elements defined as objects in the VOSviewer program can represent journals, institutions, authors, countries and keywords and form clusters or networks with connections [61]. In the bibliometric analysis process, co-occurrence analysis [61] was performed, which includes counting the data that appear together within a unit. When two elements occur together at the same time, there is a relationship between these elements [62] and the frequency of these two elements appearing together indicates that the relationship between them is strong [63]. A threshold value must be determined for bibliometric association and combination analyses. The threshold value indicates the minimum number of elements to be included in the analysis [61]. The threshold value, which determines the minimum number of publications per journal by bibliometric matching of journals by researchers, was determined as 2. In the study, citation (institution, country, author, publication and journal), co-citation (author), co-author (institution) and co-word analyses were performed with the VOSViewer software.

3. FINDINGS

In this part of the research, bibliometric data of articles on the use of Instagram in education were examined and findings regarding the distribution of articles according to the years they were published, the countries they were published in, the journals they were published in, their authors, their co-authorships, the citations of the authors, the citations of the countries they were published in, the citations of the institutions and the keywords used were included. The distribution of articles published on the use of Instagram in education by year is given in Figure 3.

When Figure 3 is examined; it is determined that the years with the largest areas in articles published are 2022, 2023 and 2024. It can be said that articles on the use of Instagram in education have increased in intensity in these years. In previous years, especially between 2015-2019, the number of publications remained at lower levels, but a significant increase has started as of 2020. In addition, it is seen that articles published on the use of Instagram in education have increased rapidly, especially since 2020. While the highest number of publications was reached in 2022, a significant increase was also observed in 2023 and 2024. It can be said that this situation reveals that there is an increasing interest in the academic field on the subject and that the research focus has intensified in recent years. The distribution of published articles by country is given in Tables 1-2 as the number of articles (N) and percentage (%).

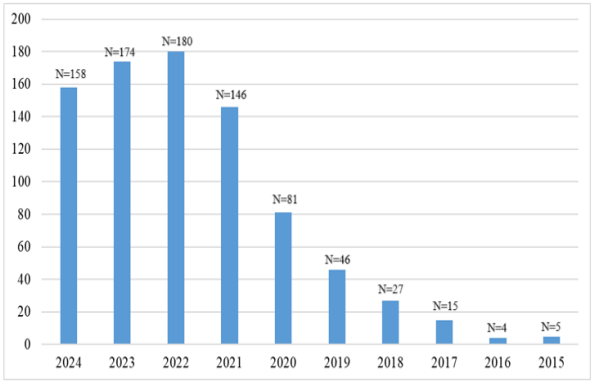

Figure 3 Distribution of Articles By Year

TABLEII DISTRIBUTION OF ARTICLES BY COUNTRY

Country	***N***	***%***
USA	237	28,34
Spain	98	11,72
England	58	6,93
India	53	6,34
Saudi Arabia	49	5,86
Brazil	44	5,26
Germany	39	4,66
Italy	31	3,70
Australia	30	3,58
Canada	29	3,46
Turkey	29	3,46
Indonesia	28	3,34
China	28	3,34
Netherlands	18	2,15
Pakistan	18	2,15
Switzerland	17	2,03
Iran	16	1,91
South Korea	16	1,91
Malaysia	15	1,79
Russia	15	1,79
United Arab Emirates	14	1,67
Poland	13	1,55
Egypt	12	1,31
Czech Republic	10	1,19

When the findings in Table 1 are examined, it is seen that the articles published are mostly published in the USA (28.34%). It can be said that this country is followed by Spain (11.72%), England (6.93%) and India (6.34%). It was also determined that a significant number of articles were published in countries such as Saudi Arabia (5.86%), Brazil (5.26%) and Germany (4.66%). Turkey's share in the total publications is 3.34%, which is at a similar level to Indonesia. The countries with the least publications are Poland (1.55%), Egypt (1.31%) and the Czech Republic (1.19%). When the geographical distribution of the articles is examined in general, it can be said that the use of Instagram in education attracts global attention, but more research has been done in some countries. The distribution of articles according to the journals in which they were published is given in Table 3 as the number of articles (N) and percentage (%).

TABLE III DISTRIBUTION OF ARTICLES BY JOURNALS

Journal	***N***	***%***
Cureus Journal of Medical Science	27	3,23
Journal of Medical Internet Research	23	2,75
International Journal of Environmental Research and Public Health	15	1,79
IEEE Access	14	1,67
Sustainability	13	1,55
Plos One	11	1,31
Social Media Society	11	1,31
Applied Sciences Basel	10	1,19
JMIR Formative Research	9	1,07
Frontiers in Communication	8	0,95
Heliyon	8	0,95
JMIR Public Health and Surveillance	8	0,95
Media and Communication	7	0,83
Frontiers in Psychology	6	0,71
Nutrients	6	0,71
Frontiers in Education	5	0,59
Healthcare	5	0,59
Aesthetic Surgery Journal	4	0,47
Arab World English Journal	4	0,47
BMC Medical Education	4	0,47
BMC Public Health	4	0,47
Computational Intelligence and Neuroscience	4	0,47
Education and Information Technologies	4	0,47
JBJS Open Access	4	0,47
Journal of Assisted Reproduction and Genetics	4	0,47

TABLE IV DISTRIBUTION OF ARTICLES BY AUTHORS

Yazar	***N***	***%***
Li JW	6	0,718
Mackey TK	6	0,718
Unger JB	5	0,598
Barroso-Moreno C	4	0,478
Marsch LA	4	0,478
Shah N	4	0,478
Akdagli A	3	0,359
Allem JP	3	0,359
Carpenter JP	3	0,359
Felix M	3	0,359
Gabarron E	3	0,359
Gil-fernandez R	3	0,359
Hassanpour S	3	0,359
Karayigit H	3	0,359
Kim Y	3	0,359
Mulcahey MK	3	0,359
Panagopoulos M	3	0,359
Rais-bahrami S	3	0,359
Ranker LR	3	0,359
Rayon-rumayor L	3	0,359
Singh NP	3	0,359
Vlachou S	3	0,359
Wijaya D	3	0,359
Wu JX	3	0,359
Wynn R	3	0,359

When the findings in Table 2 are examined, it is determined that the articles published are mostly published in the "Cureus Journal of Medical Science (%3.23)" journal. It is seen that this journal is followed by the "Journal of Medical Internet Research (%2.75)" and "International Journal of Environmental Research and Public Health (%1.79)" journals, respectively. In addition, it can be said that the journals in which the fewest articles on the use of Instagram in education are published include "Education and Information Technologies (%0.47)", "JBJS Open Access (%0.47)" and "Journal of Assisted Reproduction and Genetics (%0.47)". According to Table 2, it can be said that the articles published on the use of Instagram in education generally vary in terms of the journals in which they are published. The distribution of articles according to authors is expressed in Table 3 as the number of articles (N) and percentage (%).

When Table 3 is examined, it is seen that among the authors of articles published, authors such as "Li JW" and "Mackey TK" stand out with 6 publications (0.71%) each. These authors are followed by "Unger JB" with 5 publications (0.59%) and "Barroso-Moreno C", "Marsch LA", "Shah N" and "Akdagli A" with 4 publications (0.47%). In addition, when the distribution in Table 3 is considered, it can be said that the authors who discuss the use of Instagram in education are diverse. The findings regarding the co-authorship analysis of the authors who published articles are presented in Figure 4.

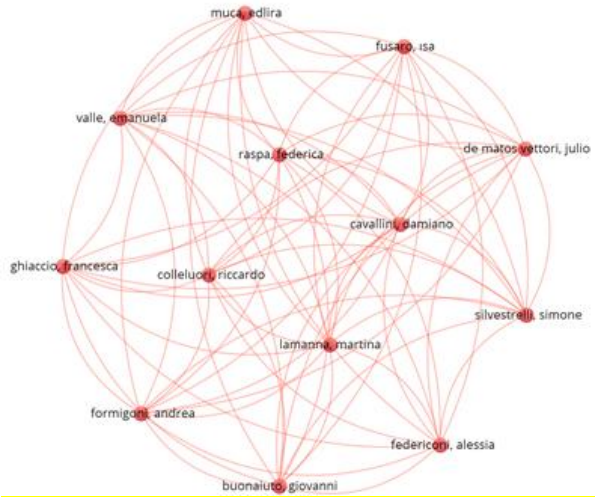

Figure 4. Co-Authorship Analysis of Authors

When Figure 4 is examined, it is seen that among the researchers who published, only the "light brown" cluster occurred and in this case, there are connections between all the authors. While the nodes on the map represent individual authors, the lines between the nodes reveal the articles these authors wrote together. The network structure reveals that some authors collaborate with each other intensively, with researchers such as "Federica Raspa", "Edlira Muca", "Isa Fusaro" and "Damiano Cavallini" being at the center. According to Figure 4, it can be said that the authors who published articles on the use of Instagram in education collaborate to a large extent. The findings regarding the citation analysis of the authors of the articles are presented in Figure 5.

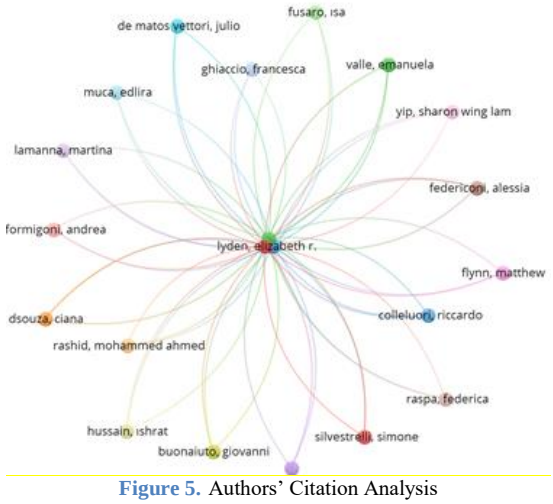

Figure 5. Authors' Citation Analysis

The author citation analysis map in Figure 5 visualizes the extent to which authors' work has had an impact on articles published and how they cite each other. The colors on the map represent author groups or clusters in research themes. "Elizabeth R. Lyden" stands out as the author with the most citations and the widest collaboration network, being at the center of the network. On the other hand, authors such as "Julio De Matos Vettori", "Isa Fusaro", "Emanuela Valle" and "Giovanni Buonaiuto" also have important connection points and can be said to have high academic interactions. The distribution of authors who published articles in terms of the number of publications (NP), number of citations (NC) and link strength (LS) is given in the Table 5.

TABLE V DISTRIBUTION OF AUTHORS PUBLISHING ARTICLES ACCORDING TO NUMBER OF PUBLICATIONS, NUMBER OF CITATIONS AND LINK STRENGTH

Author	Number of Publications (NP)	Number of Citations (NC)	Link Strength (LS)
Calderon-Garrido, Diego	2	10	4
Gil-Fernandez, Raquel	2	10	4
Carpenter, Jeffery P.	2	31	0
Otto, Thorsten	2	2	0
Thies, Barbara	2	2	0
Lyden, Elizabeth R.	1	17	18
Nguyen, Vuvi H.	1	17	18
Yoachim, Shayla D.	1	17	18
Giroux, Catherine M.	1	6	7
Moreau, Katherine A.	1	6	7
Barsukova, Mariya	1	6	4
Buonaiuto, Giovanni	1	40	3
Cavallini, Damiano	1	40	3
Colleluori, Riccardo	1	40	3
De Matos Vettori, Julio	1	40	3

When the findings in Table 4 are examined, "Giovanni Buonaiuto", "Julio De Matos Vettori", "Damiano Cavallini" and "Riccardo Colleluori" stand out as the most cited authors with high academic impact (NC=40). However, it can be said that authors such as "Elizabeth R. Lyden", "Vuvi H. Nguyen" and "Shayla D. Yoachim" stand out in terms of both the strength of connections and the number of citations, despite being among the authors with the fewest number of articles published (NP=1; NC=17; LS=18). On the other hand, "Jeffrey P. Carpenter" draws attention in terms of the number of publications and the number of citations (NP=2; NC=31). Based on these findings, it can be said that the authors with the highest values in terms of strength of connections increase academic interaction by participating in extensive collaborations. The findings regarding the citation analysis according to the countries where the articles were published are presented in Figure 6, and the distributions in terms of the number of publications (NP), number of citations (NC) and link strength (LS) are presented in Table 6.

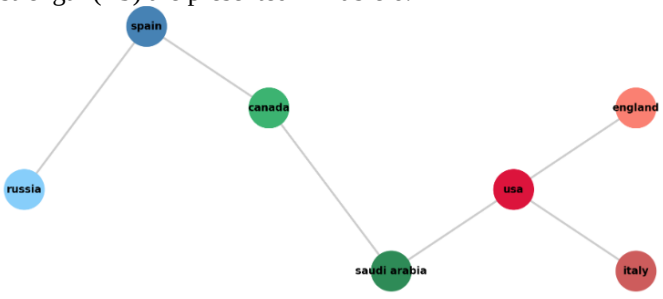

Figure 6. Citation Analysis of Countries

TABLE VI DISTRIBUTION OF ARTICLES BY COUNTRY IN TERMS OF NUMBER OF PUBLICATIONS, NUMBER OF CITATIONS AND LINK STRENGTH

Country	Number of Publications (NP)	Number of Citations (NC)	Link Strength (LS)
Spain	14	70	2
USA	8	81	3
Saudi Arabia	4	18	2
Germany	4	29	0
Canada	2	6	2
England	2	15	1
Italy	2	43	1
Afghanistan	2	10	0
Egypt	2	10	0
Russia	1	6	1
Austria	1	1	0
Bangladesh	1	10	0
Kazakhstan	1	8	0
Malaysia	1	2	0
Pakistan	1	2	0

According to Figure 6, while the USA, Spain and Saudi Arabia are in the central position in academic collaborations, countries such as the England, Italy, Canada and Russia also support the network with various connections. Spain is seen to be one of the strongest nodes. Saudi Arabia and Canada are bridge countries representing different research collaborations. This distribution shows that some countries are more involved in scientific production.

When Table 5 is examined, it is seen that Spain (NP=14; NC=70) and the USA (NP =8; NC=81) are the countries with the highest academic impact. It can also be said that the USA plays an important role in international collaborations (LS=3). Italy, despite receiving particularly high citations, has more limited international collaborations (NP=2; NC=43). In addition, other countries have relatively lower citation and connection power and seem to have less impact in terms of academic collaboration. The findings regarding the citation analysis of the article authors according to their institutions are given in Figure 7, and their distribution in terms of the number of publications (NP), number of citations (NC) and link strength (LS) are given in Table 7.

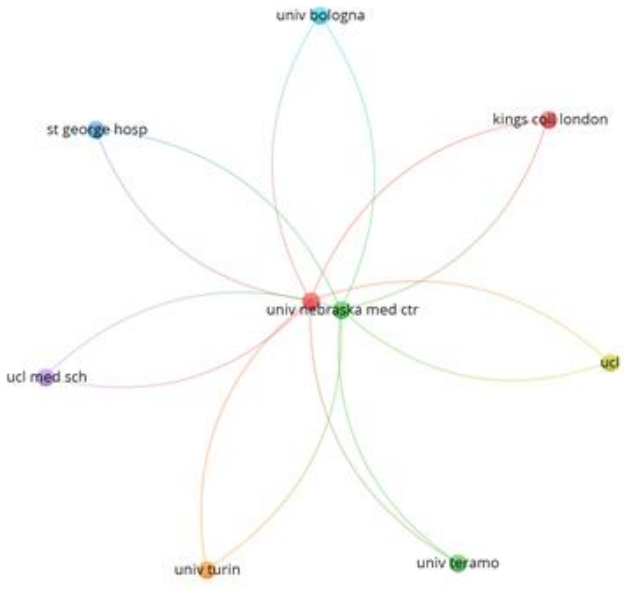

Figure 7. Citation Analysis of Institutions

TABLE VII DISTRIBUTION OF ARTICLES BY INSTITUTIONS IN TERMS OF NUMBER OF PUBLICATIONS, NUMBER OF CITATIONS AND LINK STRENGTH

Institution	Number of Publications (NP)	Number of Citations (NC)	Link Strength (LS)
University of Barcelona	3	20	3
Prince Sattam bin Abdulaziz University	3	11	0
European University of Madrid	2	5	1
Elon University	2	31	0
Technische Universität Braunschweig	2	2	0
University of Nebraska Medical Center	1	17	7
University of Texas School of Dentistry	1	17	7
International University of La Rioja	1	2	3
King's College London	1	1	2
Orenburg State University	1	6	2
Russian State Agrarian University	1	6	2
Russian State Social University	1	6	2
University of Bologna	1	40	2
University of Ottawa	1	6	2
University of Teramo	1	40	2

According to Figure 7, which shows the citation links of the institutions in the examined articles, the "University of Nebraska Medical Center" is at the center of the network and has strong connections with other institutions. It can be said that institutions such as "University of Bologna", "King's College London", "University of Turin" and "University of Teramo" are directly related to this center. When Figure 7 is taken into consideration, it can be thought that certain universities and research centers have more academic interaction with each other and carry out joint studies at the international level.

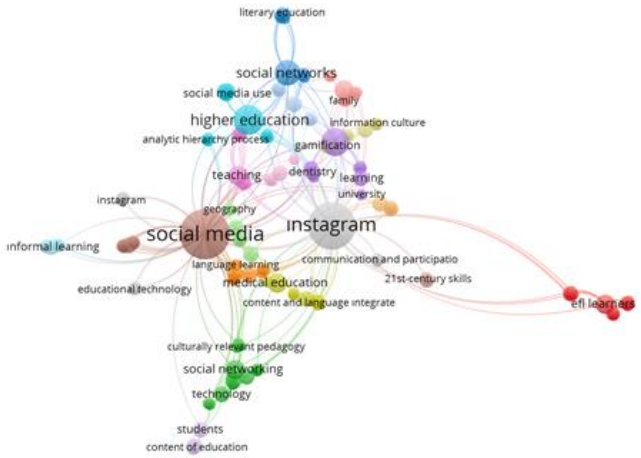

Figure 8. Co-occurrence of all keywords

According to the findings in Table 6, "University of Barcelona (NP=3)" and "Prince Sattam bin Abdulaziz University (NP=3)" stand out as the institutions that stand out in terms of the number of publications. In addition, "University of Teramo (NC =4)" and "University of Ottawa (NC =40)" stand out as the institutions with the highest international academic impact in terms of the number of citations, while "University of Nebraska Medical Center (BG=7)" and "King's College London (LS=7)" stand out as the institutions with the highest academic collaboration in terms of connection strength. Considering Table 6, it can be said that some institutions have high academic impact, while others are integrated into wider research networksThe findings regarding the keyword analysis of the articles are presented in Figure 8, and their distributions in terms of frequency (f) and link strength (LS) are presented in Table 8.

TABLE VIII DISTRIBUTION OF KEYWORDS USED IN ARTICLES IN TERMS OF FREQUENCY AND LINK STRENGTH

Keywords	Frequency (*f*)	Link Strength (LS)
Social media	19	77
Instagram	17	81
Higher education	7	32
Education	6	25
Social networks	5	27
Teaching	3	16
EFL learners	3	15
Medical education	3	11
Pandemic	3	11
Social networking	3	11
Distance learning	2	11
Undergraduate medical education	2	11
Youtube	2	11
Students	2	10
Ict	2	10
E-learning	2	9
Gamification	2	9
Nursing students	2	9
Social networking sites	2	9
Teaching english	2	9

When Figure 8 is examined, it is seen that "Social media" and "Instagramın" are the most central words and have strong connections with the keywords "EFL Learner", "Medical education", "Higher education" and "Social media". Concepts such as "Higher education", "social networks", "medical education" and "language learning" highlight how Instagram is used in the context of education. Terms such as "Gamification", "technology" and "students" indicate areas related to educational technologies, while "EFL learners" form a distinct cluster, revealing the strong connection with language learning. This analysis shows that Instagram and social media are increasingly present in educational processes and are used as effective tools in different learning areas.

When Table 7 is examined, it is seen that the keywords "social media (f=19; LS=77)" and "Instagram (f=17; LS =81)" are the most frequently used words and have the highest connection strength. In addition, considering the frequency of use and connection strength of the keyword "Higher education (f=7; LS=32)", it can be said that the research mostly focuses on the use of Instagram in the education of higher education students. In addition, words such as "Education (f=6; LS=25)" and "Social networks (f=5; LS=25)" emphasize the importance of social media in the context of education. In addition, words such as "Teaching (f=3; LS=16)", "EFL learners (f=3; LS=15)" and "Medical education (f=3; LS=11)" may suggest that the research focuses on the use of Instagram in foreign language teaching and medical education.

4. RESULTS, DISCUSSION AND RECOMMENDATIONS

Today, the digitalization process in learning-teaching environments is rapidly progressing and social media platforms

are increasingly taking place in this process. In this research, studies on the use of Instagram in learning-teaching environments were examined using the bibliometric analysis method.

As a result of the analysis, it was seen that studies on the use of Instagram in education have increased significantly especially since 2020. This increase indicates that digital technologies and social media platforms are increasingly taking place in learning processes [64]. The reason for this can be shown as the transfer of learning-teaching environments to online environments due to the COVID-19 pandemic experienced in our country and the world in 2019 and later [65, 66]. In addition, Instagram's central role as social media in collaboration and professional development among teachers [101] may have led to an increase in these posts during the pandemic period. Despite this, in future studies, the reasons for the steady increase in research on the use of Instagram in educational environments after 2020 can be examined in detail and educators and researchers can be guided.

The research findings reveal that the USA plays an important role and is in a central position in articles on the use of Instagram in education, both in terms of the number of publications and the number of citations to publications. Because as technology develops, there has been a significant expansion in online course programs in the USA, allowing students to follow programs that provide completely online courses in various disciplines [67]. This situation has caused the research field of digital technology-based educational applications in the USA to enter a rapid development phase, especially with the impact of the Covid-19 pandemic, and the publications in this field have peaked [68]. Therefore, due to the efforts to integrate current technologies into learning environments in the USA, researchers may have focused on researching the use of current technologies such as Instagram in education. According to the research findings, it is considered noteworthy that Spain is one of the countries that comes to the fore after the USA, and that the "University of Barcelona", which continues its educational activities in Spain, stands out in the examination made on the basis of institutions. It can be said that this situation is due to the effectiveness of the education policies implemented in line with the 2030 Sustainable Development Goals in Spain [102]. Despite this, it can be said that the USA is quite prominent, as it is more than twice as many as Spain, which comes after it, in terms of the number of publications and citations (Table 1; Table 5). The concentration of academic output in the USA generally leads to increased investment in research and development, technological infrastructure, and the involvement of higher education institutions in cutting-edge research, as well as intensive links and collaborations with that country [103]. It can be said that many countries, including the USA and Spain, as well as our country, have turned to research in this area in recent years. However, considering that better education can be provided by using the best technologies in the process of adapting Education 5.0 in underdeveloped or developing countries [69], it can be said that more research is needed on the use of Instagram in education, especially in our country and other countries.

Another prominent finding within the scope of the research is that the articles examined were mostly published in the journals "Cureus Journal of Medical Science", "Journal of Medical Internet Research" and "International Journal of Environmental Research and Public Health". It is noteworthy that the common feature of these journals is that they are journals that publish in the fields of medicine and health. Instagram, one of the social media applications, offers unique ways to disseminate medical promotion and educational information [70], which may have directed journals publishing in the field of medicine to such research. In addition, according to the findings obtained within the scope of the research, it was determined that the keyword Instagram has strong connections with the keywords "EFL Learner", "Medical education" and "Higher education". Based on this finding, it can be said that the use of Instagram in medical education in higher education institutions is widely researched. Because social media tools play an important role in facilitating education in different medical fields [71-73]. The strong connection of Instagram with foreign language teaching as well as medical education is also striking. Because Instagram has become one of the most researched social media tools due to its potential to make foreign language learning easy and interesting [74-76]. Because studies on the use of Instagram in education show that Instagram is used in different areas such as language learning [75], medical education [77, 78], learning motivation [79,80] and digital literacy [81]. It can be said that this situation is due to the interactive and visual-oriented structure of Instagram. In the study [28], it was concluded that Instagram supports writing skills in language learning and increases student motivation. Similarly, in the study conducted by [36], it was emphasized that Instagram used in medical education is a powerful tool that supports visual learning. In addition, Instagram is also seen as a tool that supports students to collaborate with their peers and create academic content [82]. However, considering that Instagram can be used as an effective teaching tool in different disciplines and education levels [83, 84], it can be suggested that future studies focus on research on the use of Instagram in different disciplines and education levels.

As a result of the analysis conducted in the research, "Li JW (https://www.webofscience.com/wos/author/record/68323594)", "Mackey TK (https://www.webofscience.com/wos/author/record/504935)" and "Unger JB (https://www.webofscience.com/wos/author/record/29206102)" stand out in terms of the number of publications, while "Elizabeth R. Lyden (https://www.webofscience.com/wos/author/record/25126897)" stands out as the most cited author and the author in a central position with extensive collaboration. In addition, research on the use of technology in medical education draws attention as a common feature of these authors. While "Li JW" continues his research at a university in China, it is noteworthy that the other authors conduct research at universities in the USA. It can be said that these authors have made significant contributions to the use of Instagram in education with different researchers and have focused on this area. In conclusion, this research reveals the increasing academic interest in the use of Instagram in education and the main areas where research in this field focuses. It reveals that research on the use of Instagram in education has increased over the years and that it makes significant contributions especially in supporting language learning, medical education and higher education. In addition, it has been determined that countries such as the USA, Spain, England and India are the leaders in academic production in this field, that certain authors publish more on the subject and that certain journals publish these studies more. These findings show that the role of Instagram in education is increasingly accepted in academic circles and that it is used in different disciplines. In line with the findings obtained, in order to use Instagram more effectively in education, educators can

combine Instagram with interactive teaching strategies to provide students with easier access to course content. Student participation and interaction can be supported by using interactive features such as question-answer, live broadcast and survey.

LIMITATIONS

The data obtained on 13.02.2025 within the scope of this study is limited to the WoS database. Therefore, studies in other databases could not be examined within the scope of this analysis. In addition, Instagram, one of the social media platforms, was examined in the study. Another limitation is that the study only covers studies conducted between 2015-2024.

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