

Language Learning Through Social Media: Insight From Bibliometric and Content Analysis

Kadek Devi Kalfika Anggria Wardani

{devikalfika@undiknas.ac.id}

Universitas Pendidikan Nasional
Bedugul Street No. 39, Sidakarya, Denpasar, Indonesia

Abstract. The massive development of social media in recent years has encouraged teachers' creativity to use it in language learning. Bibliometric analysis and content analysis were carried out to provide an in-depth understanding of research developments in this field and how social media is used by teachers and its impact on the achievement of learning objectives. The analysis was carried out by analyzing relevant documents obtained from the Scopus database published from 2013-2022 using the VOS Viewer. Overall, based on predetermined criteria, 250 publications from 10 countries were obtained that discussed the use of social media in language learning. The results of the analysis of keyword trends and clustering show that the development of social media research is widely used to support multimodal learning and collaborative learning in the context of language learning. In addition, based on the content analysis, it is known that the affordability aspect is the main consideration in selecting the social media used. Referring to this aspect, Instagram, Facebook, and Twitter are the top 3 media that are widely used. The use of social media also has a positive impact on students' motivation in learning languages.

Keywords: bibliometric, content analysis, language learning, social media

1 Introduction

The development of information technology has transformed the interface of language education during late decade. It offers interesting choices to the teachers to use IT for creating meaningful ambience for the students. It is shown by the massive growth of research related to technology for pedagogy and language assessment, including discourse analysis, literature study, second language acquisition and computer mediated language education[1]. Various experiments conducted to identify the suitable technology with activities and aims for language education including used of social media.

Social media can be identified as various forms of application and technology to participate in making and sharing sources and media practice for other users through digital network[2]. Berbagai rangkaian aplikasi, situs, dan layanan media sosial yang tersedia saat ini sangat

beragam dan memiliki popularitas yang berbeda satu sama lain. The recent application, sites and social media service are various and have different level of popularity. In the beginning, blog and wiki were most popular social[3]. Therefore, Facebook become the higher number of users over the world about 2.934 billions of active user in 2022 over the world[4]. Beside Facebook, there are other popular social media recently such as YouTube, Whatsapp, Instagram, WeChat, TikTok, Telegram and Twitter.

In the practice of learning, several studies found that the used of social media has positive impact on language learning. Most of those studies verified that used of social media appropriately could be positive for learning process. It related to increasing students' motivation in learning and decreasing their wary[5][6], student perception and behavior persepsi[7][8], make it more fun and able to strengthen their commitment in learning language [9]:[10]:[11] . Moreover, from the teacher's point of view, social media is considered capable of being a good learning resource, helping teachers to share learning resources with students, and can be used to provide feedback[12]. The flexibility that social media brings to share multiple media as well as form social networks, has made it a socially engaging and entertaining learning resource and media.

However, teachers are often caught between contradictory discourses regarding the use of social media in class. On the one hand, social media is seen as a good tool to increase student motivation in learning, but on the other hand there are still a number of concerns. This is related to the view assesses that; 1) the use of social media can increase the possibility of private problems which are student privacy being exposed publicly; 2) students' low media literacy skills can lead to a lot of wrong information; 3) social media can make students lose their ability to involve themselves actively in a real (face to face) communication environment; 4) the occurrence of cyberbullying[13]:[14].

Therefore, recommendations are needed from a number of studies that have been conducted related to how social media can be optimized to improve the achievement of language learning objectives. Given the above gaps, this paper aims to offer recommendations regarding the use of social media in language learning through bibliometric analysis and content analysis. Bibliometric analysis is used to provide recommendations related to research trends in the field of social media use in language learning. While content analysis is used to view; 1) how social media is used in the classroom, 2) what social media has so far proven to have a positive impact on language learning, and 3) what things teachers need to consider in choosing social media as a source and student learning media.

Similar studies in language learning have been carried out before. Fuad et.al conducted a bibliometric and bibliographical analysis of 100 Scopus articles to discuss the use of technology in learning foreign languages during the Covid-19 pandemic. The results of this study show that digital platforms such as learning management systems and social media applications are becoming technology trends used to support the process of learning foreign languages. In addition, blended learning, mobile learning, or remote learning are models of learning foreign languages that are currently trending during the COVID-19 pandemic. Kadir dan Aras[16] researched trends and patterns of Mobile-assisted language learning (MALL) through bibliometric analysis. The findings of the study indicate that much MALL research has been conducted regarding linguistic and non-linguistic factors of student interactions with mobile devices or applications. It was found that MALL developments tend to incorporate the use of mobile devices in informal learning contexts and outside the classroom due to the flexibility and

functionality of m-learning anytime anywhere. Juan dan Yong[17] conducted a similar analysis by reviewing Mobile Assisted Second Language Learning (MASLL) from data collected through the Web of Science. The results of the study show that there are a number of topics that are popular in this field, namely the effects of technology on learning, vocabulary, personalized learning, learning environment, and learner attitudes. A number of previous studies have differences with this study. These differences relate to the object of study regarding the use of social media in language learning environments and in terms of the methods used. This study involved a combination of bibliometric analysis and content analysis. Through the combination of these two methods, it is hoped that the results of this study can provide a more comprehensive picture of how social media should be positioned in language learning.

2 Research Methods

2.1 Source of Data

The data in this study comes from the Scopus database. The Scopus database is one of the most commonly used databases in bibliometric and scientographic analysis[18][19][20]. The Scopus database is a product of Elsevier which was created in 2004. It is currently considered one of the largest databases covering scientific journals, books, conference proceedings, etc. When launched for the first time in 2004, this database contained approximately 27 publication records from various sources for the period 1996-2004. Based on Scopus content coverage guide data (October 2019) this number has grown to 23,452 active journal titles, 120,000 conferences and 206,000 books from more than 5,000 international publishers. Content included in the Scopus database is selected by The Scopus Content Selection and Advisory Board (CSAB), which is a group of international scientists and librarians representing 17 main disciplines. Throughout the year, the board is responsible for reviewing all titles suggested for inclusion in the Scopus database.

2.2 Data Collection

To obtain relevant data related to the use of social media in language learning, data collection was conducted through a number of procedures. First, define keywords and key phrases. In the first stage, data search was conducted on November 30, 2022 by combining the key phrases "social media" AND "language learning". Using this combination, 265 publications were obtained from 2010-2022. Second, several inclusion criteria were added to ensure that the data obtained used criteria 1) documents published in scientific journals (not conference papers, book chapters, reviews, notes, or letters); and 2) the document is written in English. In the final stage, 173 data were obtained to be analyzed.

Table 1. Document Selection Process

Search Screening	Number of Documents	Total Remaining Document
Pencarian dengan kombinasi frasa kunci social media"AND"language learning".	0	265
Bukan dokumen conference paper, book chapter, review, note, atau letter	83	182
Dokumen yang tidak menggunakan bahasa Inggris	9	173

2.3 Data Analysis

At the data analysis stage, the process will be carried out in two stages. The first stage is to conduct a bibliometric analysis using Vos Viewer and BibliometryX (Biblioshiny) on R-Studio to get an overview of research trends in the field of social media use in language learning. The second stage is content analysis that focuses on 1) aspects of using social media in the classroom, 2) social media that has a positive impact on language learning, and 3) what things teachers need to consider in choosing social media as a source and media for student learning.

3 Results and Discussion

3.1 Evolution in The Field

Based on the results of analysis of 173 previously selected documents, it is known that the trend of using social media in language learning has begun since 2010. The number of published research results is growing stably and will continue to increase until 2022 (see Figure 1). From initially there was only one published document in 2010 the number increased sharply to reach its peak in 2021 with 30 publications. Even though in the following year there was a slight decrease (27 publications), the number was still relatively high when compared to the initial period of its emergence. This increase seems to be in line with the massive growth in the number of social media users. In addition, the social media choices studied also seem to change dynamically according to the level of popularity of certain social media in society. In the early days of its development, blogs and Facebook were two types of social media that were widely researched in language learning (see Bakar et.al[22], Idris et.al[23], Andersson et.al Arzu[25]). In its development, Instagram, Telegram, and TikTok have become several social media choices that have been extensively studied in language learning (see Zhao[6], Alawadhi[26], Akhiar[27], Khulel[28]). In addition, interesting facts were also found from the significant increase in publications that occurred from 2019-2021. This shows that social media is an attractive option for teachers to help facilitate the distance learning process that occurred during the pandemic that occurred in the last three years.

3.2 Leading Journal

Table 2 shows that there are 20 leading journals out of a total of 119 research journal sources. In conducting this analysis, the determination of leading journals is not based on the number of articles owned but based on the impact they have seen from the large number of citations. "Computer Assisted Language Learning" is the journal that has the highest impact with 166 citations followed by "Language Learning & Technology" in second place with 153 citations. The third position is occupied by Calico Journal with 144 citations. Based on the number of citations owned, it is known that the trend of using social media in language learning continues to grow.

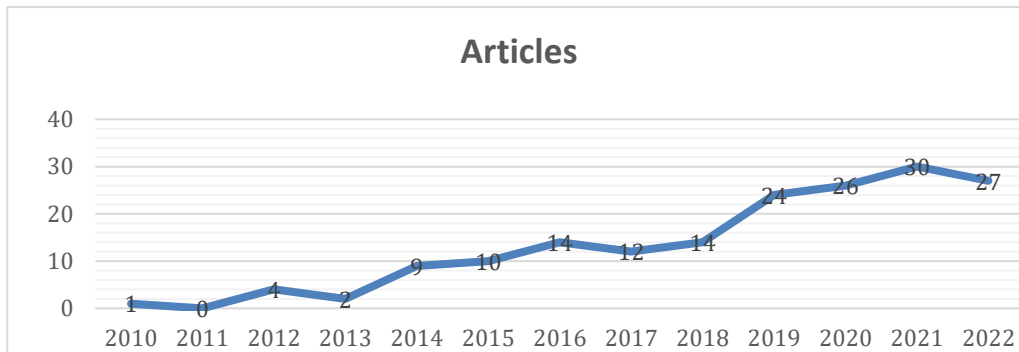


Fig. 1. Annual Production Per Year
Source(s): Authors' own analysis using R-based Bibliometrix

Table 2. Most Cited Sources
Source(s): Authors' own analysis using R-based Bibliometrix

No. Sources	Sources	Articles
1	Computer Assisted Language Learning	166
2	Language Learning & Technology	153
3	Calico Journal	140
4	Computers & Education	88
5	Recall	86
6	System	86
7	British Journal Of Educational Technology	60
8	Language Learning And Technology	58
9	The Modern Language Journal	55
10	Journal Of Computer Assisted Learning	51
11	Computers In Human Behavior	47
12	Australasian Journal Of Educational Technology	45
13	Language Teaching	42
14	Language Learning	38
15	The Internet And Higher Education	35
16	Tesol Quarterly	34
17	Educational Technology & Society	33
18	Language	32
19	Learning	31
20	Applied Linguistics	29

3.3 Performance Analysis

Data analysis shows that there are 367 authors who have examined the use of social media in language learning. Of the 173 articles, 52 of them are single studies and 121 are multi-author studies. To identify the top researchers in this field, a performance analysis is carried out on the database used. Each author gets one score for each article written. Based on these criteria, it is

known that Lantz-Andersson A., Parmaxi A., and Zaphiris P. are the most relevant authors with 4 articles followed by Haristiani N., and Lai C. in second place with 3 articles (Table 3). In a number of studies, Lantz-Andersson A.[30]·[31]·[32]·[24] found that interactions that occur between users of social media can expand the possibilities for producing collaborative learning spaces using social media. Not much different from research conducted by Lantz-Andersson A., Parmaxi A. and Zaphiris P.[33]·[34]·[35]·[36] trying to see the possibility of using social media in language learning by exploring the use of social media such as blogs and wikis. His research also found that there is enormous potential for facilitating language learning groups, including with regard to aspects of social media affordability in language learning context.

The analysis is then continued by looking at the most productive countries in publishing. Figure 3 shows that Indonesia is the most productive country in this field with 48 publications. Followed in second place by Malaysia and America with 38 publications. While the third position is occupied by China with 23 publications. The results of the analysis also show that social media research trends in language learning are more prevalent in Asian countries. Of the total number of countries that publish, 45% of them are countries in the Asian region. This fact is inseparable from the high number of social media users in these countries. In 2022 it is estimated that more than 60% of social media users in the world will be in the Asia-Pacific region.

Table 3. Most Productive Authors
Source(s): Authors' own analysis using R-based Bibliometrix

No of Author	Authors	Articles	Articles Fractionalized
1	Lantz-Andersson A	4	2,67
2	Parmaxi A	4	1,83
3	Zaphiris P	4	1,83
4	Haristiani N	3	1,08
5	Lai C	3	1,75
6	Bailey Dr	2	1,00
7	Bowen R	2	0,67
8	Brysbart M	2	0,58
9	Chai Cs	2	0,58
10	Dos Santos Lm	2	2,00
11	Hasan Mk	2	0,40
12	Kessler G	2	2,00
13	Laborda Jg	2	0,83
14	Lee Cb	2	0,58
15	Leier V	2	1,00
16	Liu T	2	0,58
17	Lomicka L	2	1,00
18	Reinhardt J	2	2,00
19	Rifai Mm	2	0,58
20	Vigmo S	2	0,67

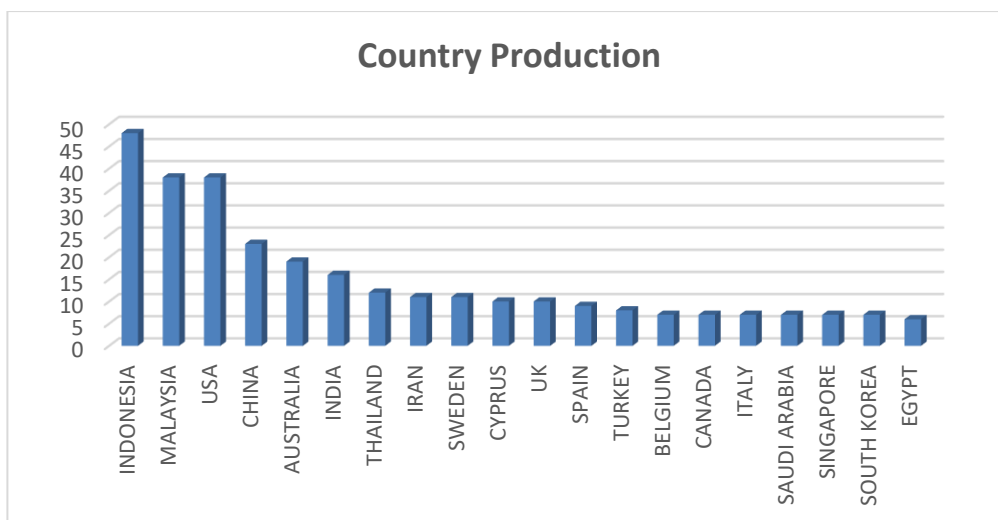


Fig. 2. Country Production

Source(s): Authors' own analysis using R-based Bibliometrix

3.4 Co-occurrence Analysis

Co-occurrence analysis is used to visualize networks between keywords. This analysis is performed to create publication mappings that have identical or similar keywords. The basic assumption used is that words that often appear together have a thematic relationship with each other. Such publications generally have similar content because the research contexts are similar. This analysis was performed using VOSviewer to create a visualization of co-occurrence using all related keywords, including author keywords and the keywords assigned by the database. The minimum number of occurrences of keywords specified is 5 and the thesaurus is also used to unite several keywords that have the same meaning as: "social networking" dan social networking (online); "computer assisted language" dan "learning computer-assisted language learning; "english language learning dan "efl". Based on those criteria, there are 21 keywords which divided into three different cluster (Table 3).

Of the 21 identified keywords, there are several keywords that describe how social media is used in language learning. The keywords referred to are "computer assisted language learning", "informal learning", "social networking (online)", "collaborative learning", "e-learning", and "second language acquisition". So far, the process of language learning is seen as a process that takes a long time and requires a large amount of input and interaction[37]. The use of technology, such as social media, is seen by many teachers as a good alternative solution to open the widest possible opportunities for students to interact with each other through their social networks using the target language. The various media available on social media make the content in it a fun source of learning, so that the tension and worry that often occurs in the process of learning a second language can be suppressed[5]:[6]. In addition, teachers can also get many opportunities to give students meaningful and authentic feedback than in the classroom.

A number of keywords that have been identified also provide clues related to the choice of social media used in language learning. Several social media that are popularly used based on the number of links and total link strength are "facebook", "twitter", and "instagram". Among the three, it appears that "facebook" is the most interesting social media for researchers to study with 14 numbers of occurrences and a total link strength of 13. Followed by Twitter in second position and Instagram in third position.

The analysis is then continued by overlaying the visualization to see the distribution of keywords in the publication period (2010-2022). The unit of analysis was determined using the minimum criteria of 5 keywords, it obtained in 21 keywords that are connected to each other (Fig. 4). Looking at the visualization that appears, information is obtained that in the early period of social media research in language learning, the keywords that appeared were related to "facebook", "computer assisted language learning", "learner autonomy", "language teaching", "collaborative learning", "social networking (online)", and "e-learning". This trend in the last two decades has shifted. Recent research related to the topic of using social media in language classes relates to the keywords "motivation", "multimodality", "technology", and "efl".

Table 3. Keyword Cluster
Source(s): Authors' own analysis using VoS Viewer

Cluster	Keyword	Number of Occurences	Total Link Strength
Cluster 1 (red)	efl	10	14
	facebook	14	13
	language teaching	5	11
	learner autonomy	5	8
	learning	6	13
	teaching	7	16
	twitter	5	11
Cluster 2 (green)	collaborative learning	5	11
	computer assisted language learning	11	17
	foreign language learning	8	15
	second language acquisition	5	9
	technology	6	7
	web 2.0	8	19
Cluster 3 (blue)	instagram	5	10
	language learning	31	48
	motivation	8	10
	multimodality	7	7
	social media	75	85
Cluster 4 (yellow)	e-learning	6	10
	informal learning	8	17
	social networking (online)	13	25

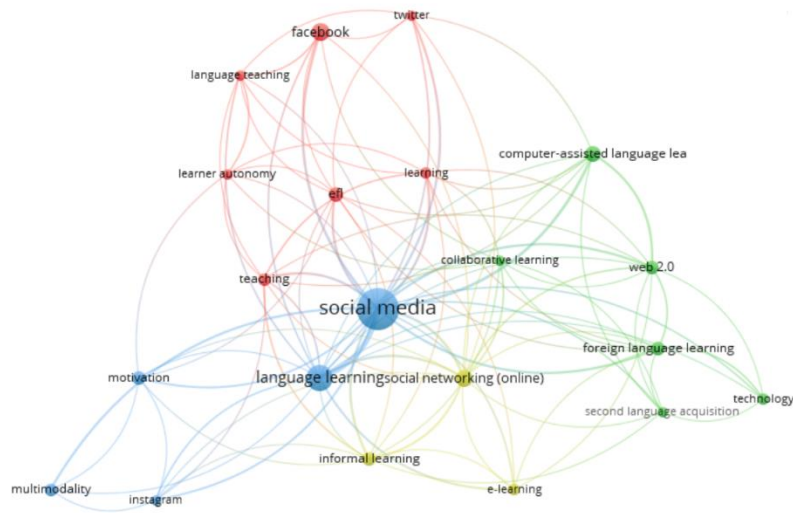


Fig. 3 Network Visualization
Source(s): Authors' own analysis using VosViewer

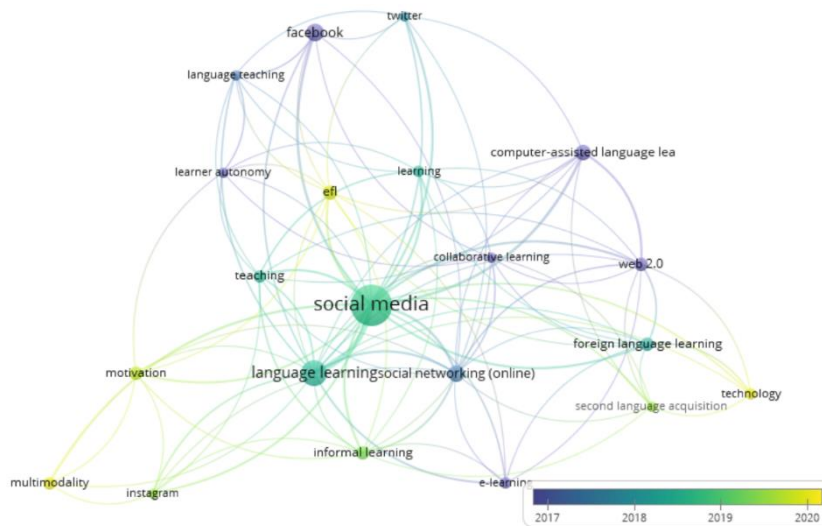


Fig. 4. Overlay Visualization
Source(s): Authors' own analysis using R-based Bibliometrix

3.5 Social Media in Language Learning

The bibliometric analysis in the previous section shows that many researchers are interested in using social media to support language learning. This interest is at least due to two factors. First, the popularity possessed by the social media. At the end of October 2022, it is estimated that the number of users of the three social media is more than 300 million active users [4]. The massive use of social media has caused them to have extensive social networks wherein people

with various language and cultural backgrounds can interact with one another. Viewed from the point of view of connectivism theory which understands knowledge is built through the formation of networks and connections[38], this kind of condition is an ideal condition for language learners. They can easily practice their target language skills directly with native speakers. Students can easily immerse themselves in real language situations. In addition, they can also easily collaborate with their colleagues in completing certain tasks through their social networks.

The second factor relates to the ability of social media to provide various modes and types of information that can be exchanged. Social media has features that enable students and teachers to exchange a variety of information in the form of images, text or short videos. This makes social media not only visually appealing, but also has the ability to better facilitate communication between students and teachers as well as between one student and another. In addition, the learning experience can also be enhanced by posting relevant articles or videos, which can encourage collaboration between students inside and outside the classroom[39]. It is on this basis that social media has great appeal for teachers to use as a learning medium in supporting several learning modes in the context of language learning such as computer assisted language learning, collaborative learning, e-learning, informal learning and second language acquisition.

Related to the types of social media that are effective for use in language learning, so far there are quite a variety of types. Facebook, Twitter and Instagram are the most researched types of social media and have had a positive impact on language learning. Several other social media were also found to have a positive impact, although the frequency of their appearance was not as high as the three types of social media. The types of social media in question include (see Xodabande[40], Zhao et.al[41]), Tik Tok (see Lee[29]), Snapchat (see Aloraini dan Cardoso[42]), and Whatshapp (see Fornara dan Lomicka[43]).

Related to the basic considerations for choosing social media to use in language learning environments, in general, researchers place the affordability factor as an important factor in the selection. The affordability aspect is considered to provide certainty to every student to get equal opportunities in learning through the actual features of a tool or an environment[44]. This aspect of affordability considers not only the properties of technology and users, but also the environment in which the interactivity between the two takes place. For example, the use of Facebook can be used as a medium for learning methods that involve collaborative aspects, because in social media there are facilities for joining groups. Apart from that, the teacher can also use it to manage class activities because it includes a notification feature.

Apart from affordability considerations, a study conducted by Aloraini and Cardoso[7] found that the selection of the type of social media used in language learning can be done by considering the level of proficiency of the learner. In the study it was found that advanced participants perceived WhatsApp as the least useful and Twitter the most useful, whereas Snapchat and Instagram were no different from each other. The novice participants also found WhatsApp to be the least useful, but there was no difference in usability for the other three apps. This suggests that, with respect to usability, novice students rated WhatsApp, Instagram, Snapchat and Twitter more positively than the advanced group, with Twitter rated the most useful by both groups. Then a qualitative analysis was carried out to confirm these findings, it was found that there were differences in perceptions between the two groups of students. The

idea of social media as a "support tool for learning" differed between beginner and advanced participants. For advanced learners, "support" means solving independently with minimal teacher involvement, as social media is considered their personal space. For beginners, "support" means learning resources added to what is already provided in class, which may also be facilitated by the teacher. Therefore, both groups accept social media as a pedagogical tool, but differently: one as a complement (advantage) and the other as an extension (beyond) language classes.

4 Conclusion

This study systematically summarizes the big picture related to research on the use of social media in language learning starting in 2010-2022. The results of this study indicate that there were 173 research articles published in that time period. The results of the bibliometric study show that the development of research in this field has experienced a dynamic increase from year to year, and is getting sharper after 2019. Along with the increasing popularity of social media, research in this field has attracted the attention of researchers from various parts of the world, especially countries that are in the Asian region. Forty-five percent of countries that are in the top 20 countries with the most active publications are in the Asian region. Visualization of keyword networks also shows the development of research trends that continue to grow. In the initial period when the research topic appeared, it was more directed at certain functions of social media used to support various modes of language learning. In recent years the focus of research has been on the function of social media to motivate students in the context of EFL learning. The dynamic development of research in this field is inseparable from the popularity and flexibility of social media which allows users to exchange information using various media. Facebook, Twitter, and Instagram are the most popular social media groups for research. However, a number of other social media were also found to have a positive impact on language learning. The choice of social media for use in language learning by teachers can at least consider aspects of affordability and also the level of proficiency of language learners.

Several implications can at least be drawn from these findings. First, this study can provide guidelines for future researchers to conduct research in the field of the use of social media in language learning, especially with regard to the choice of which type of social media is effective for improving language skills. Second, this study has implications that the use of social media in the classroom needs to consider certain aspects so that results are achieved optimally and in accordance with learning objectives. Not all types of social media are suitable for all circles. Therefore, the teacher needs to conduct a preliminary assessment to find out the level of students' technology mastery, the affordability of the media used, and their level of proficiency.

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