Social Networks and Their Contribution in the University Educational Field: Systematic Review

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Abstract—With the massification of social networks and the incursion of data science in the university environment, it requires us to investigate and reflect on whether these tools are contributing to the improvement of the teaching-learning process, academic research, administrative services and social welfare. This paper has formulated three questions, with the purpose of conducting and achieving the goals of literature review, RQ1: What social networks are applied in the university educational field? RQ2: In what areas of the university educational system are they applied social networks? and RQ3: How do social networks contribute in their application to the university educational environment? The authors have carried out a systematic review based on the PRISMA statement (Preferred Reporting of Items for Systematic Reviews and Meta-Analysis), on findings published in Spanish and English, in Scopus, Eric and Google Scholar databases, within the period between 2010 and 2022. The descriptors used as part of the search strategy were "Social network", "Twitter", "Instagram", "WhatsApp", "University service", "academic services", "administrative services" and "Social welfare services". The results focused on the review of 17 articles, finding that the most used social network in the university environment is Twitter, focusing its application on academic services such as the teaching learning and research process. However, it is evident in the state of the art that there is a lack of institutional policies that formalise the use of social networks as well as norms that establish their good practices of use.

Index Terms—Social network, Twitter, Instagram, WhatsApp, university services, academic services, administrative services, social welfare services.

I. INTRODUCTION

Society changes and the way university students interact as well, possibly at a faster rate than higher education is changing these days [1]. This new way of interacting with students is linked to social networks, defined as social structures composed of groups of people, which are connected by one or more relationships, such as affinity, purpose or common interest [2–4]. The term social networks is linked to spaces or technological environments, based on web applications, and whose application is diverse; however, these are sustained by the fluid and permanent participation of the user [5]. In this context, there is no doubt that social networks arouse interest in the academic field about knowing the effects they generate on the success and educational development of students [6, 7]. It is difficult to carry out university education without the presence of technological tools, many of them based on the web environment, since these affect all the variables that are involved with the university environment [8–10]. One of the changes linked to university trends in these times is in the methodological aspect, due to the ease of interconnectivity supported by the Internet and Web 2.0 tools [11, 12]. With the incursion of new approaches such as Web 2.0 in the educational field, it has been possible to offer a set of web resources and tools that allow students and teachers to interact, share, produce and exchange academic resources and information, generating new learning and teaching strategies [13–15]. Social networks in the university educational field appear with the use of interpersonal communication tools and network collaboration in the educational context, opening multiple options to add a dimension to the learning and knowledge processes [16]. The relevance of its application is associated with the fact that students master the management of social networks, possibly they are registered in many of them, through which they carry out various interaction processes linked to the exchange of feelings, information and knowledge about a socio-educational context cultural, forming new ties of common interests with other users [17]. Thus, social networks are tools that have become a common and ideal space for the exchange of information in a fast, simple and comfortable way, with Twitter and Facebook being the most popular and most used social networks among students [18]. One of the social sectors that has had the greatest penetration in young people is the mobile phone, generating a context that has allowed its interconnection at a local and global level [19].

However, despite many efforts on the applicability of social networks in higher education, there are still many aspects that remain to be covered in order to make their use efficient in the various services of the university education system [20–22]. In this regard, López stated that the efficient insertion of social networks into the university educational system also involves the teacher acquiring knowledge about the management of these web tools, since it would be unsuccessful to direct and apply this technology as part of their teaching strategies [23]. It is necessary for the teacher to

be digitally competent and, not only that, but also to guide the students in the entire educational process for its applicability [24]. More than competing with technologies, it is a challenge for university directors and teachers today to understand them and adapt them to the processes linked to the various educational services [25]. It is necessary to reflect on the new horizons and other models of thinking about the social status of universities in the contemporary world, seeking to identify the elements that characterise the participation of universities in social networks [26]; and it is the main reservations regarding the university use of social networks that should move us to concrete actions at the time of implementation in the various services offered by the university to its students [27]. University educational institutions have not yet fully implemented the incursion of social networks in their different areas, which is why research on this field of study is relevant [28].

To which end, in this article a systematic review is carried out based on the PRISMA statement regarding the contribution made by social networks on the university educational environment in the timeframe of the year 2010 to 2022, on articles published in the Scopus, Eric and Google Scholar databases. Thus, the questions that will lead to the achievement of the systematic review were also specifically determined, as detailed in the section linked to the methodology.

II. METHODOLOGY

A. Type of Study

The study carried out is a systematic review of the literature, in which it is intended to identify, select, evaluate, and qualitatively synthesise the evidence or findings corresponding to how social networks contribute to the university educational field described in the scientific literature. For which three questions have been formulated with the purpose of conducting and achieving the review goals, which are: RQ1: What social networks are applied in the university educational field? RQ2: In what areas of the university educational system are social networks applied? and RQ3: How do social networks contribute in their application to the university educational environment? In this regard, Moher *et al.* [29], Page *et al.* [30] established that a systematic review is the review of a clearly formulated question and that it uses systematic and explicit methods to collect and analyse data extraction from studies included in the review. Thus, in order to establish a structured mechanism for systematic review, an approach to the PRISMA statement was used, since it has been designed as a tool to help improve transparency and clarity in the publication of systematic reviews [31–33].

B. Search Strategy

For the search process, the descriptors linked to the research questions were used, relating them to the keywords written in both Spanish and English, these being: "red social", "social network", "social media network", "Twitter", "Instagram" and "WhatsApp", "Servicio universitario", "university service", "Servicios académicos", "academic

services", "Servicio social" and "welfare service". Table I shows the search strategy used for each database used, in which a protocol was designed with the combination of Boolean integrators. In this regard, Olarte-Mejía and Ríos-Osorio points out that specificity is achieved in the search for bibliographic sources in the systematic review process by using Boolean algebra between the descriptors [34].

TABLE I: SEARCH STRATEGY THROUGH BOOLEAN OPERATORS

Specialised database	Search equation
SCOPUS	(((TITLE-ABS-KEY (red AND social)) OR (TITLE-ABS-KEY (social AND network)) OR (TITLE-ABS-KEY (social AND media AND network))) AND ((TITLE-ABS-KEY (twitter)) OR (TITLE-ABS-KEY(instagram)) OR (TITLE-ABS-KEY (whatsapp)))) AND (((TITLE-ABS-KEY (servicio AND universitario)) OR (TITLE-ABS-KEY (universitity AND service))) OR ((TITLE-ABS-KEY (servicios AND académicos)) OR (TITLE-ABS-KEY (academic AND services))) OR ((TITLE-ABS-KEY (servicios AND administrativos))OR (TITLE-ABS-KEY (administrative AND services))) OR ((TITLE-ABS-KEY (servicios AND bienestar AND social)) OR (TITLE-ABS-KEY (welfare AND services))))
ERIC	("Social network*" OR "Social media network*") AND ("Twitter" OR "Instagram" OR "WhatsApp") AND (("University service") OR ("Academic services") OR ("Administrative services") OR ("Welfare services"))
Google Scholar	((("Redes sociales") OR ("Social network") OR ("Social media network")) AND ("Twitter" OR "Instagram" OR "WhatsApp")) AND (((("Servicio Universitario") OR ("Servicios academicos") OR ("Servicios administrativos") OR ("Servicio de Bienestar social") OR ("University service") OR ("Academic services") OR ("Administrative services") OR ("Welfare services"))

C. Inclusion and Exclusion Criteria

In order to reduce bias and eliminate irrelevant and low-quality studies, inclusion and exclusion criteria were established in order to select eligible articles to be included in the systematic review process. In this regard, Linares-Espinós *et al.* points out that it is necessary to establish inclusion and exclusion criteria or protocols in a systematic review process, since these contribute to reducing the biases present in the extraction of bibliographic sources and the findings contained therein [35]. Table II shows the inclusion (IC) and exclusion (EC) criteria considered for the extraction of bibliographic sources.

TABLE II: INCLUSION AND EXCLUSION CRITERIA FOR PUBLICATION ELIGIBILITY

Inclusion criteria	Exclusion criteria
IC1: Articles on contexts of university education	EC1: Articles on contexts of primary and secondary education, older adults, family settings, health, or other contexts.
IC2: Articles that focus their studies on social networks such as Twitter, Instagram, and WhatsApp.	EC2: Articles that focus studies on learning platforms such as meet, zoom or others.
IC3: Articles developed during the years 2010 to 2022.	EC3: Articles developed prior to 2010.

IC4: Only open access articles that allow full text download and peer review.	EC4: Books and Conference Proceedings. Articles that only have access to summaries.
IC5: Articles written in Spanish and English	EC5: Articles written in languages other than English or Spanish

The criteria were established seeking to delimit the search for sources that lead to answering the research questions, taking into account the relevant scenario and context for the systematic review, such as the field of study, social networks to be evaluated, period of publication of results in bibliographic sources, accessibility of bibliographic sources and language in which the source is written.

D. Data Extraction and Critical Evaluation

In order to further reduce any type of bias in the search for bibliographic sources, Fig. 1 shows the flowchart in which the process in which the scientific articles were filtered, in which it is quantitatively specified how it is possible to filter through the stages established in the PRISMA statement. In a first stage, a total of 658 articles are obtained, selected on May 2, 2022, of which, after the application of the inclusion and exclusion criteria, 17 articles were obtained which focus strictly on the subject of study. In this regard, Sánchez-Teruel and Robles-Bello [36], and Crisol-Moya *et al.* [37] point out that the flowchart is relevant since it shows with transparency and clarity the process of search and selection of bibliographic sources, showing the process of reviewing the literature from an initial stage to its final stage.
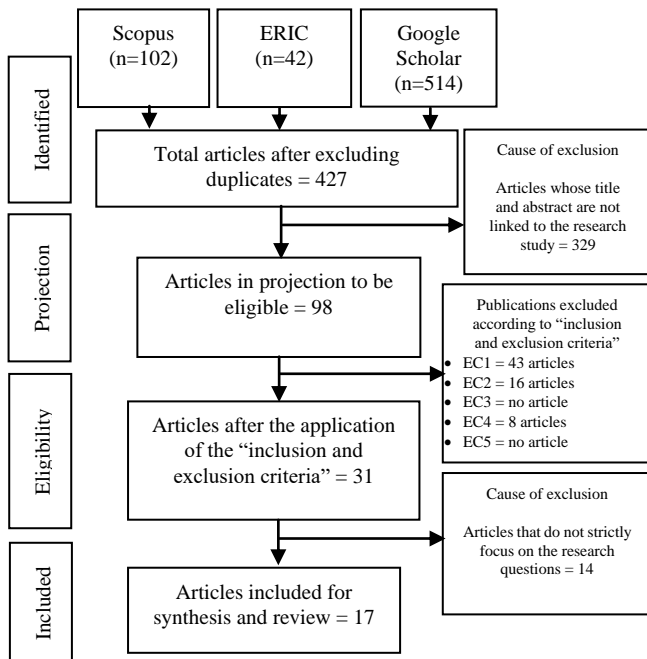

Fig. 1. PRISMA flowchart used for retrieving publications from Scopus, ERIC and Google Scholar.

III. RESULTS

Applying the PRISMA methodology and identifying the articles to be included in the final stage of the systematic review, for whose selection a series of strict criteria was used that lead to obtaining articles focused on the research problems, resulted in a total of 17 selected articles, these being extracted from the Scopus database: five articles, ERIC:

10 articles and Google Scholar: two articles. Fig. 2 shows the distribution by year of publication of the selected articles.

It is evident that the subject under study has experienced an emerging growth during the last years. As such, Hershkovitz *et al.* [38], and Gezgin *et al.* [39] affirm that, in recent years, before the mass use of mobile devices by students, once again these are integrated into networks to communities where the exchange of information is permanent and continuous. From this scenario, the experience on cases and findings show that how social networks are applied to the educational field, at all levels, is increasing, from which it is deduced that publications on these study topics are also on the increase.
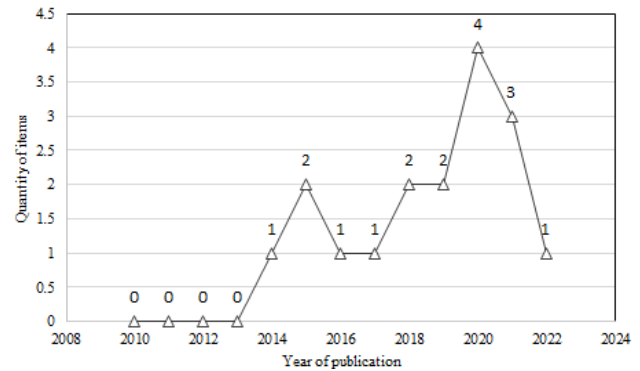

Fig. 2. Distribution of articles included in the systematic review by year of publication.

Taking the articles finally included for the systematic review as a reference, the results are shown below considering the questions formulated as part of the research problem as criteria.

A. Identification of Social Networks that Are Applied in the University Educational Field

Regarding the identification of social networks that are applied in the university educational field, from the review of the 17 articles included for this stage, it is found that the researchers make use of Twitter [40–52], which, for this study, is positioned as one of the most applicable networks and contribute to different areas of the university environment during the period established in the inclusion criteria of the systematic review, defined for the period from 2010 to 2022. It was also found in [53] that Instagram is the least used social network in this review, even below the use of the WhatsApp social network that in which Calderón-Garrido and Gil-Fernández [53], Alqahtani [54], and Toyn [55] established its contribution to different areas of the university system. Although the study focused on the social networks mentioned above (Twitter, Instagram and WhatsApp), it was possible to identify in this systematic review of the literature that there are cases in which not only is a social network used but is also used simultaneously with other networks to achieve a greater contribution to areas in which the service is provided in which the use of other social networks such as Facebook, social networking site (SNS) and Flipgrid is additionally detailed.

In quantitative terms, it can be established that of the universe of 17 articles, 76.47% use the social network Twitter to improve aspects related to the university

educational field. However, this percentage does not imply that the use of the social network twitter is exclusive, but rather that, as mentioned, different social networks are combined so that the contribution is even more significant. Of this percentage, only 47.10% use Twitter, as evidenced in [41–43, 45, 46, 48–50]; however, while the most used social network, Table III shows the distribution of the articles reviewed, according to the social network they refer to, as a contribution to the university educational environment.

TABLE III: SOCIAL NETWORKS USED TO IMPROVE THE UNIVERSITY EDUCATIONAL SERVICE

Social Networks	References
Twitter	[40–52]
Instagram	[53]
WhatsApp	[53–55]
Other social networks: Facebook, social networking site (SNS), Flipgrid	[40, 44, 47, 51, 52, 55, 56]

B. Identification of University Educational Areas in Which Social Networks Area Applied

In this investigation of the state of the art on the field of university services in which social networks are applied and useful and that contribute to their improvement, it has been determined from the systematic review that the findings focus significantly on the application in the academic service, as indicated in [40–42], [44–56] in comparison to other services also identified in this literature review, such as the social welfare service and the university administrative service. In quantitative terms, 94.12% of investigations refer to favourable results on the application of social networks to the academic service; however, not all this percentage refers only to the application on the academic service, but also 17.65% show contributions simultaneously on the academic service and on the social welfare service, as can be found in [47, 53, 55]. In addition, only one investigation referred to positive results on the application of social networks to the university administrative service. Table IV shows the distribution of articles according to their application in the field of university services.

TABLE IV: UNIVERSITY SERVICES IN WHICH SOCIAL NETWORKS ARE USED

University service	References
Academic service	[40–42, 44–56]
Administrative service	[43]
Social welfare service	[53, 55]

It should be noted that the results shown regarding the university services in which the contribution of social networks is applied and achieved are part of the delimitations established in this systematic review, the same as were considered as descriptors for the search of bibliographic references. This precision is due to the fact that there may be other areas in which social networks linked to the university system are applied; however, for the purpose of establishing margins or delimitation in the study, only the three services mentioned were considered.

C. Contribution of Social Networks That Are Applied in the University Educational Field

Regarding how social networks contribute in the university educational field and strictly on the services mentioned in the previous section, in this systematic review it has been possible to determine that, in relation to the "academic service" specifically, the studies focus on the field of research, as evidenced in [40, 45, 50]; The authors maintain that social networks contribute to generating an environment, database or collaborative space, in which these become sources of information on results, discoveries of academic research or essays that not only involves an improvement of knowledge from the perspective of the student but also from the position of the teacher, not only in the scenario of participants from a single university but also expands the universe of participants since it gives the possibility of integrating teachers and students from other universities.

Continuing with the contributions of social networks on the "academic service", in this regard, Osatuyi and Passerini [41], Ghounane [52], Alqahtani *et al.* [54], Toyn [55], Sánchez-Teruel and Robles-Bello [56] pointed out that social networks are useful for the learning process, highlighting that they contribute to generate a forum for the exchange of ideas and a platform that integrates academic resources, facilitating the availability and timely access of these materials before, during or after the class session. They also establish that social networks contribute to the learning process since they allow a permanent exchange of ideas on a frequent basis, developing discussion forums not only among classmates from the same class section, but also among students from other sections, from other universities and including contributions of opinions of teachers from other universities. In this regard, Toyn pointed out that these social networks help to ensure that students acquire significant knowledge, based on frequent, voluntary, and spontaneous interaction [55].

However, talking about the contributions of the networks on the academic service does not focus only on the field of "research" or the "learning process", but is also linked to the "teaching process", that is, the teachers themselves are the ones who give the initiative to make use of these social networks as part of their teaching strategies. In this regard, Ogbonnaya [44], Marcelo and Marcelo [48], Adjapong *et al.* [49], Calderón-Garrido and Gil-Fernández [53] affirm that these social networks easily adapt to the characteristics of a repository in which the teacher shares academic and educational resources, creating a global network in which knowledge is created from the exchange of information. Another finding is that social networks are also platforms for exchanging information for teachers, in which students no longer participate, making an exclusive space in which teachers spontaneously exchange problems and solutions to occurrences that they present in the different scenarios of the university field. As such, Adjapong *et al.* pointed out that, for teachers, social networks are not only limited to the exchange of knowledge, but also allow the exchange of aspects related to the different cultural visions worldwide [49].

It is significant the different applications and contributions found in this systematic review, which notes that there is a

great diversity of how to use these networks in the field of "academic service". Sturm and Quaynor [46], Jordan [47] highlighted the application of social networks in the promotion of academic achievements seeking to improve and achieve academic impact among teachers, achieving an environment for the exchange of opinions and discussions that ultimately contribute to teacher training.

Moving on to another scenario, it was determined that social networks are also useful in the field of "social projection service", since, as pointed out in [53, 55], social networks contribute to the insertion into the labour market of students regarding a demand from society or a community in need of solving various problems, which is then disseminated through social networks. Under another perspective of social projection, social networks, as Toyn [55] stated, allow creating an environment that can be identified by the comments made by students about their emotional state, and

that, through encouragement or moral support from their peers, allow their evolution to be monitored by the area in charge of the university, eliminating possible adverse scenarios in which a student may find him or herself.

Finally, with respect to the contribution of social networks in the field of "administrative service", Mart ñez-Cardama and Pacios [43] pointed out that, in this context of the health emergency declared by the Covid-19 pandemic, social networks have had very good useful results since they have allowed university libraries to identify the demand for their bibliographic sources as well as to disseminate their digital collection, achieving great acceptance by students from different Spanish universities, through Twitter. Table V shows the contributions of each article with respect to the specific scope of application as part of the services offered by the university educational system.

TABLE V: CONTRIBUTION OF SOCIAL NETWORKS IN THE UNIVERSITY EDUCATIONAL FIELD

Specific scope of application	Social Media Contribution	Methodology used in the research	Articles
Research	They allow the generation of a database, with which relevant information can be generated for use in academic research	Exploratory and descriptive research. Computer tools were used to extract data from social networks Twitter and Facebook.	[40]
Research	They allow students to extract and identify relevant aspects about a topic of multiculturalism.	Exploratory research, with a qualitative and quantitative approach.	[45]
Research	It creates a collaborative environment in which news, discoveries, and results of laboratory tests are shared, not only with the university community but also with a global group of students or teachers who even do not belong to the university, generating discussion about the findings.	Exploratory research, with a quantitative approach, based on the number of tweets received through an own account and for whose analysis Twitter Analytics was used.	[50]
Learning process	They streamline the exchange of information, as well as class materials in a permanent and timely manner, and serve as a tool to judge or issue opinions on behaviours typical of the development of class sessions.	Exploratory research, on a sample of 169 students who were given a survey to determine their perception of the use of Facebook as part of their professional training.	[56]
Learning process	It encourages the participation of a forum for the exchange of ideas regarding the class sessions, achieving greater involvement and, therefore, improving their performance.	Quasi-experimental research, in which the relationship between the use of Twitter and student performance is sought.	[41]
Learning process	It promotes the learning of the English language, being used as a platform that integrates various learning materials, facilitating permanent access.	Quantitative study. A survey was used as a data collection technique, to apply it to a sample of 300 students.	[54]
Learning process / Social welfare	It allows developing an informal environment in which students acquire significant knowledge from permanent interaction. It provides an environment in which students provide encouragement and moral support, in the face of adverse scenarios in which a student may find themselves.	Exploratory research, with a qualitative approach. An intentional sample selection technique is used, with four cohorts.	[55]
Evaluation of teaching performance	They allow to evaluate the teaching performance process of the developed class session, through the application of a questionnaire that evaluates the perception of student satisfaction.	Research with qualitative design, focused on data analysis. The sample was 146 students.	[42]
Teaching process	It allows several teachers to socialise and exchange ideas or points of view about teaching strategies or techniques.	Inquiry method with cross-sectional design, on a sample of 388 students, teacher candidates. The questionnaire was used as a data collection instrument.	[44]
Teaching process	It allows teachers to create a means of support in which they absolve questions or questions from students, permanently, massively, facilitating work material, and disseminating additional information on what was developed in the class session.	Exploratory research, with a qualitative approach. We worked with hashtags of teachers whose identification was made through descriptors with a minimum number of mentions.	[48]
Library service	It allows identifying how university libraries adapted to the content of virtual classes in the context of the health emergency. These being relevant mechanisms since they allowed the continuity of the service.	Qualitative and quantitative method. The contents of tweets in the comments regarding the service of 56 university libraries were analysed.	[43]
Teaching process / Insertion into the labour market	It creates a space similar to a repository in which teachers share academic and educational resources with their students. It allows identifying relevant aspects related to the training of future teachers and their link with social networks, creating materials and supplies in order to improve their insertion into the labour market.	Descriptive research. A questionnaire was used, applied to a sample of 812 students corresponding to six universities in Spain.	[53]

Teacher development	It allows creating a space for the exchange of ideas between teachers, advice on specific topics of the specialty between peers and guarantees permanent or sustained communication generating active learning.	Qualitative approach, with analysis of the frequency of participations through Twitter of teachers that were linked to their professional learning.	[46]
Promotion and academic impact	It allows generating an academic community in which there are no restrictions, such as those shown by institutional repositories, thus achieving a search for a permanent space in which the promotion, impact and exchange of academic opinion are disseminated.	Qualitative approach and exploratory in nature, with co-interpretative interviews.	[47]
Teaching process	It allows the creation of a global network worldwide in which not only information is shared but also knowledge can be created from the exchange of aspects related to cultural perspectives.	Qualitative coding techniques were used, with a sample of 31 participants, and as a data collection technique, a survey linked to a questionnaire-type instrument was applied.	[49]
Teacher development	It creates an inclusive community that allows teacher development based on the consumption of updated information linked to scientific research, opening spaces for criticism and contributions, achieving informed teachers in the advancement of science and technology.	Narrative inquiry from a sample made up of teachers was used in which the discussion focuses on the collective experience of the use of the Twitter social network.	[51]
Learning process	It was possible to show that, through Facebook, students get involved to exchange academic information, a positive predisposition was found to interact permanently among peers and with their teachers.	A case study was conducted at the University of Algeria. The sample consisted of students (the number is not specified).	[52]

Following the review of the literature, Fig. 3 shows as a summary a matrix in which the bibliographic reference is associated with the specific scope of application of social networks in the university system. In this regard, Dreifuss-Serrano *et al.* [31] established that, through this matrix, the indicators are clearly determined in relation to the results obtained in the systematic review.

		Social networks				Specific scope of application								
Year	Source	Twitter	Instagram	WhatsApp	Other social networks	Research	Learning process	Teaching process	Evaluation of teaching performance	Library service	Promotion and academic impact	Teacher development	Insertion into the labor market
2014	[56]				■								
2015	[40]	■			■								
2015	[42]	■							■				
2016	[41]	■					■						
2017	[45]					■							
2018	[49]							■					
2018	[54]			■									
2019	[44]	■											
2019	[47]	■									■		
2020	[55]			■									
2020	[46]	■										■	
2020	[52]	■			■								
2020	[43]	■								■			
2021	[50]	■				■							
2021	[51]	■			■								
2021	[48]	■						■					
2022	[53]		■	■				■					■

Fig. 3. Matrix in which the bibliographic reference is associated with respect to the specific field of application of social networks in the university system.

IV. DISCUSSION

Having carried out the review of the literature regarding social networks and their contribution to the university educational environment, and taking into account the research problems that motivated this systematic review of the literature, the following discussions are detailed below.

In the case of social networks that are applied at the level of university services, the review of the literature leads us to point out that the Twitter social network is the most used among WhatsApp, Instagram or Facebook, and even more frequently than other social networks. SNS networks (social networking site), regarding the universe of articles reviewed in [38–50], mention success cases on the use of Twitter in the university environment in general, justifying, among other aspects, that this social network has affinity with the frequent, spontaneous, agile and accessible development and interaction of university students, who, through hashtags, can generate conversation threads, monitor incidents and trends linked to very useful impact levels if we associate it with academic spaces or specific environments, where what is sought is to disseminate results or findings of an investigation. In this regard, in other research reviewed, Toyn points out that Twitter is the social network with the highest demand to generate content compared to other social networks [55]. Also, Mueller *et al.* reaffirms what was stated above since the

research concludes that Twitter can be a useful social network to disseminate academic content and research work [56]. In this regard, Magadán-Díaz and Rivas-García affirmed that Twitter associated with research activities turns out to be a tool which has the advantage of consuming fewer resources, in relation to other data collection techniques, providing results on large volumes of information through computational environments [57]. Likewise, Ávila-Rodríguez *et al.* supports this in concluding that Twitter can be a useful social network to disseminate academic content and research work [58]. Moreover, Denia affirmed that Twitter associated with research activities turns out to be a tool which has the advantage of consuming fewer resources, in relation to other data collection techniques, providing results on large volumes of information through computational environments [59]. In this same line of opinion, Pérez-Rodríguez *et al.* points out that Twitter depends more on individual interest and commitment than on having a communication team, which provides a relevant justification compared to other social networks [60]. As another justification for using Twitter in the academic field, Betancur *et al.* concludes that, in the educational system, this social network is a tool that generates information of interest, with multiple applications and contributions at the university level that range from its application in the process of learning, evaluation, analysis of perception and use in the research field [61].

In relation to in which area of the university educational system social networks are applied, from the systematic review of the literature it was possible to obtain that the greatest application occurs in the area linked to the "academic service", that is, to the learning process, such as found in [41, 52, 54–56] or to the teaching process as determined in [44, 48, 49, 53] or to the investigative process as found in [40, 45, 50], more than in other areas of the university education system. Other research supports what is stated, as Torres and Alcantar pointed out that social networks are becoming a tool that leads to the development of communication skills and is useful as a strategy of the teaching-learning process by students [62]. However, Hoz *et al.* pointed out that a greater contribution of social networks could be achieved at the university level [16], for which institutional policies should be established to formalise their application in areas such as academic, research and administrative. In the same line of opinion, Álvarez and Encinas pointed out that, although it is true that social networks contribute to the academic field, the lack of regulations at the university level can lead to certain disadvantages, such as student distraction, leisure, loss of time and lack of concentration during the teaching-learning process [63].

Regarding how social networks contribute to their application in the university educational field, it was found in the systematic review of the literature, as indicated in [40, 45, 50], from the perspective as a database or collaborative environment, it shares academic information among members of the university community to disseminate results or findings related to research. Likewise, Osatuyi and Passerini [41], Ghounane [52], Alqahtani *et al.* [54], Toyn [55], Mueller *et al.* [56], pointed out that social networks turn out to be spaces or forums in which students exchange comments on a particular subject, offering a capacity for spontaneous communication and manifestation and volunteer.

However, it is found in the articles considered in the systematic review limitations in the application of social networks in the university environment. As such, Marcelo and Marcelo indicated that it should not be established that the resources shared in social networks generate knowledge, or that the simple fact of uploading class material is related to the generation of knowledge, emphasising that the teacher and students must be involved in a significant way to achieve results that contribute to assimilating that content [48]. In the same line of opinion, Sturm and Quaynor established that, when using social networks as part of the teaching-learning process, techniques should be sought that allow the feedback process to be generated in a sustained manner, that is, it is not enough to upload some material or resource of the class, but the teacher must carry out an active work to clear the doubts and validate the opinions that are generated [46].

V. CONCLUSION

From the systematic review of the literature, it is possible to conclude that, of the different social networks, the social network with the greatest reception for its use or application and consequently generating some contribution in the university academic field, is Twitter. This does not imply that it is better than other social networks, since each social network today responds to an overwhelming population of users; however, in the review of the literature, it is identified that the scientific publications on the subject under analysis show greater accessibility and overcrowding in the study populations, showing results that demonstrate the contribution to the university educational system. Thus, it is also concluded that these revised studies or investigations focus more on their application of social networks on academic fields linked to the teaching-learning process and the field of research. Finally, it is concluded that the application of social networks to the university environment does not respond to regulated processes as part of institutional policies, but rather forms part of a process that responds to a demand of the student or teacher; and it is precisely where the university authorities should focus efforts in order to firstly evaluate its feasibility to be formally implemented and secondly evaluate the impact of its application, in the different services provided by the educational institution.

Based on the discovery of the state of the art of the subject under study, it is recommended to investigate how to formalise the use of social networks in the university academic field, which must be linked to a set of criteria that define its good practices of use for an efficient integration to the academic, administrative, and social welfare services linked to the university system. Academic institutions need to establish standards and policies to formalise the application of social networks.

As future work, a study should be carried out on the application of data science, opinion mining, or sentiment analysis to extract information from social networks on the assessment and identification of student satisfaction with the services offered by the university and as a strategy for

continuous improvement of academic quality.

CONFLICT OF INTEREST

The authors declare no conflict of interests.

AUTHOR CONTRIBUTIONS

Omar Chamorro-Atalaya formulated the research questions, as well as the objectives of the systematic review and final conclusions as the main author. Carlos Gamarra-Bustillos was in charge the literary revision for the development of the introduction. Rufino Alejos-Ipanaque was in charge the methodological part, specifically the writing of the type of research and the definition of the search formula through Boolean operators. Giorgio Aquije-Cardenas also contributed to aspects of the methodology defining the inclusion and exclusion criteria. Yurfa Medina-Bedón carried out the identification and projection of the articles to be considered in the systematic review. Verónica More-Sánchez was in charge the selection of eligible articles and final articles included in the systematic review through the application of the inclusion and exclusion criteria. José Farfán-Aguilar focused on the results and development of mapping the contributions of social networks in the university educational field. Erika Zevallos-Vera wrote the discussion of the results.

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