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Attitudes and practices of educational researchers toward the use of social media to disseminate science

In recent years, there has been a notable increase in the use of digital platforms in higher education and science. This tendency has impacted how knowledge is produced, accessed, and disseminated, considering the internet and social media strategies. This study seeks to investigate the attitudes and practices of educational researchers when it comes to sharing science on social media. An online survey (N=487) was used to measure participants' motivations for using or not social media, frequency of use, attitudes, and practices for sharing scientific research and sociodemographic characteristics. Overall, findings reveal that there is high support for the use of social media for academic purposes. Most researchers prefer to publish full results over partial results. The researcher's perception of the importance of social media is greater than the actual use of them. Finally, we identify some of the main reasons that facilitate or limit the academic use of social media, thus contributing a contextualized reflection on such use.

Keywords: social media, science communication, education, researchers, user attitude.

Introduction

In recent years, there has been a notable increase in the use of digital platforms, impacting the way in which information is created, recorded, and communicated. Specifically, social media uses “mobile and web-based technologies to create highly interactive platforms via which individuals and communities share, co-create, discuss, and modify user-generated content” [1]. An advantage that increases interest in its use is

that these platforms allow easy and rapid dissemination and sharing of information to much wider audiences than traditional methods of communication [2,3]. The rising interest in the use of social media in our societies has not only implied the transformation of conventional communicative references but also an increasingly necessary awareness of the challenges that scientific actors and agents must assume in the use of this type of digital scenarios to guarantee the visibility of knowledge generated from academia. The use of social media (SM) for academic purposes, such as networking or disseminating, has been observed to increase, becoming an essential tool for the research process [4, 5, 6, 7].

Relevant studies have shown that despite the growing interest in social media, there are still important limitations of their academic use in scientific dissemination, e.g., the extant attitudes towards social media, which have been found to influence their use [8, 9, 10, 11]. This scenario presents a challenge that has been addressed in several studies aimed at understanding the use and measures that have been carried out for the promotion of this type of digital communication scenario in different fields of scientific knowledge and actors related to these [12, 13, 14, 15]. These new dynamics require the deployment of novel skills by research staff as well as changes in the processes of scientific dissemination [16, 17, 18]. Collectively, this process has modified the way they perform their work, but also, the perception of the impact that having a good digital profile and knowing how to use it can have on their careers is evident [19, 20, 21].

Attitudes and practices regarding the academic use of social media

Among the main reasons for using social media for academic purposes are attracting people to read about one's work, personal and research group visibility, networking and collaboration, discussion, and social influence [18]. Another study [5]

introduced a process model of five major research activities that researchers in social media can display: networking, framing, investigating, disseminating, and assessing.

Additional reasons are to find participants for research or experiment, to resolve doubts or to obtain academic aid. At a personal level, when using these networks, users expect to receive feedback, publicize and obtain citations of their work, provide constant updates, and sometimes access job options [17, 22, 23]. The main limitations identified thus far concern the requisite investment of time or lack of such time, issues related to security and privacy and a lack of institutional support [18, 24, 25].

It has been observed that the attitude of users towards the use of social media influences their intention to use them [26, 27, 28, 29]. In this way, perceiving SM as a tool that is necessary for the efficient exchange of information will contribute to greater use [30]. Other variables, such as perceived utility and degree of control, have been identified as robust predictors [31, 32]. In addition, it has been shown that attitude towards the use of SM is a mediating variable between the positive impact of the perception of utility and the perception of ease of use [33].

There is an outgoing debate on the difference between disseminating and communicating science [34, 35]. In this paper, the focus will be placed on dissemination. By providing better accessibility to discovering, retrieving, and understanding research, SM facilitates dissemination and serves as an interesting channel to communicate science. Dissemination can be understood as any activity that makes it possible to share research outcomes with broader audiences [36]. So, it can be related to the process of maximizing the impact of research results. It usually involves actions like sharing partial research results, announcing publication acceptance to specific networks, and providing unpublished versions to pre-print servers and scholarly collaboration networks, among others. An important distinction is that what is shared can be a partial result (i.e., poster

presentation, conference paper) or a full result (i.e., pre-prints, published papers, data sets). In general, research in this area has shown that the amount of shared data seems to vary according to the discipline of the researchers and their specific field's protocols: age, digital management skills, perception of difficulty and benefits and, of course, other cultural factors also have an impact [37, 38].

The Context of the Educational Research

Currently, in the university environment, we find ourselves immersed in a society that pays increasing attention to the use of technology [39]. This situation raises the need for teachers and educational researchers to continuously improve their skills in terms of optimal use of technological tools [40]. The integration of Spanish universities into the European Higher Education Area (EHEA) has made it necessary to adopt new approaches and develop training changes in universities and teaching practices.

Results from a study carried out in Spain [41] observed that only 36% of university-level researchers were categorized as proactive digital researchers. Those with a higher number of publications are more digitally proactive in scientific social media, and those more active in scientific social media have a higher H Index. ResearchGate is the profile management network with the highest number of users; no gender differences were observed. Another study [42] analyzed the use of social media by the Spanish National Research Council (CSIC) centers and public universities made of Web 2.0 to disseminate their research. Specifically, in the case of the universities, the presence on Facebook and Twitter was around 40%, on YouTube was nearly 22%, and only 22% had blogs. Overall, both types of centers make scarce use of social media for the dissemination of research.

The predominance of ResearchGate and Academia.edu over other social media and the specific differences in use according to the area of knowledge have also been highlighted [10, 41]. Additionally, a study [43] showed that researchers from engineering, biomedicine and natural sciences use both networks more, while those in social sciences and humanities choose Academia.edu. These differences have been observed in several other countries and studies, emphasizing the specificity of each area of knowledge [44, 45]. According to an analysis of the main studies published by Spanish academics in recent years (see Table 1), data indicates that interest in social media use is accepted and promoted; however, the use of social media to disseminate research results is still scarce.

Table 1. Empirical research on the academic use of social media in Spain

Authors	Sample and main findings
López and Olvera [42]	Spanish projects funded by the European Research Council in 2015. Low use of digital tools, only 23.9% of the projects have a website and less than 15% have social profiles. In terms of participation mechanisms, a limited 3% use web 2.0 to involve citizens.
Mandiá-Rubal et al. [41]	A total of 2.257 research authors affiliated to Spanish universities. Only 36% were categorised as proactive digital researchers. RG is the profile management network with the highest number of users; no gender differences were observed.
Rodríguez-Fernández et al. [10]	Sample of 552 teachers/researchers from three Galician universities. The degree of knowledge and use of SNs is on an upward trend, with a positive assessment of their use and usefulness, although the frequency of access to them is still low.
López-Pérez and Olvera-Lobo [46]	It analyses the use that Spanish National Research Council (CSIC) centres and public universities make of web 2.0 to disseminate their research. Among the results, the scarce use of social networks by both types of centres for the dissemination of research stands out.
Campos-Freire and Rua-Araújo [59]	Survey of 463 universities professors and researchers. Overall, their knowledge and use of these networks remains low. 90% were registered in some professional or academic network, but only 8.64% considered themselves expert users. LinkedIn and RG have the most members, although usage is moderately low.
Dafonte-Gómez et al. [50]	Presence and activity in Academia.edu and RG of communication researchers in Galician universities. The presence of researchers in Academia.edu is much higher than in RG, while 41.58% of teachers have a presence in Academia.edu, only 27.72% have a presence in RG.

Campos and Valencia [59]	Representative sample of 244 Spanish academics from Spanish Association of Communication Researchers. The most used social network site by Spanish researchers is Academia.edu, representing a 53% of the sample. RG only reaches the 15%, but this percentage of scholars has an active role on this scientific network in qualitative terms, as shown in their RG Score.
Ortega [45]	Analysis of the profiles of 6.138 researchers from the Spanish National Research Council (CSIC). It describes important differences in the use of SNs by area of knowledge, researchers in humanities and social sciences are more active in Academia.edu, while RG attracts more in food science and technology, biology and biomedicine and technology.

Source: elaborated by the authors

In general, the studies from Spain show a clear vision of maintaining institutional profiles and scientific activity on social media. Nevertheless, there are more limitations to promoting social media use in individual profiles [46]. Based on their qualitative meta-synthesis of 68 studies published between 2008 and 2018 on scientific collaboration and academic digital identity on social media [47], it has been concluded that there is a lack of studies with a critical view and in-depth analysis of academic practices regarding social media platforms.

Despite the above, the level of communication and dissemination carried out by educational researchers remains low, as noted in several studies [10, 48, 49]. This scenario limits the use of the knowledge that the researcher can actually generate, both at a social and individual level.

In this context, academic social networks become an opportunity for researchers to enhance their work, potentially increasing the dissemination of their research and collaboration with other academics. However, academic social networks still have many gaps, uncertainties, and reluctance. This is not surprising, as they are a new phenomenon and are not yet on par with traditional media in terms of prestige and recognition. Treating these platforms as objects of research helps to integrate them as effective tools for academic research [50]. As we have highlighted, the use of digital tools affects society, and universities are no exception [51]. Therefore, social media are seen as a working tool at almost all levels of academic life, positioning as a powerful communication tool. In the present study, we contribute to the discussion on the topic by analyzing the attitudes towards the use of social to disseminate science in educational research in the Spanish context.

Method

This study is part of a research project called ComscienciaEduSpain.¹ This project argues that despite social media's social relevance, the communication and dissemination strategies of researchers dedicated to scientific activity in education have not favored the promotion of scientific knowledge to improve the work carried out by education professionals in Spain.

Hence, the general objective of the study is to identify the attitudes and practices of researchers dedicated to scientific activity in education regarding communication and scientific dissemination on social media.

A quantitative study was carried out using a survey technique among teaching and research staff at Spanish university institutions that were dedicated to scientific activity in education. The criteria for selecting participants from this group were as follows: have published scientific content (articles, books, book chapters or others) during the last five years (2016-2020) in academic journals indexed in Scopus and the Web of Science (WoS); have used the keyword “education” in works on topics related to education in the fields of psychology, the social sciences, arts or humanities; and are affiliated with a Spanish university. The Scopus and WoS criteria were used because they are two of the main scientific indexing systems that are currently used to measure the quality of scientific content published at the higher education level.

A total of 12.044 academic works were identified (11.104 academic works indexed in Scopus, 636 academic works indexed in WoS, and 304 works indexed in both databases) that met the defined criteria. Of this total, 5.314 email addresses associated

¹ Research project N° FCT-20-15761, funded by the Spanish Foundation for Science and Technology – Ministry of Science and Innovation. More info at: <https://comscienciaeduspain.es/>

with authors linked to these academic works were identified, and these served as the basis for the application of the online survey among a simple random sample made up of 533 researchers ($e = +/-4.2$ and $1-\alpha = 95\%$).

The survey design was validated via 45 complete surveys, recorded from the participation of 67 participating researchers, equivalent to 9% of the total sample taken from the analyzed population. We tested that the researchers correctly understood all questions. For the ordinal questions, Cronbach's alphas $> .88$ were obtained, showing a good reliability criterion for the survey. For the present study, email invitations were sent to the 5.314 previously identified email addresses corresponding to educational researchers.

Participants

The final sample was composed of 487 researchers (226 women) between 27 and 82 years of age ($M_{\text{ageWomen}} = 46.57$, $SD = 9.67$, $M_{\text{ageMen}} = 47.47$, $SD = 10.24$). The average age of the sample was 47.02 years ($SD = 9.90$). The percentage of men was 46.40%, with women making up 52.56% and five people identifying themselves as another gender (1%). The surveys were conducted via an online questionnaire through *QuestionPro*. Participation was voluntary, and on average, the participants took 10 minutes to complete the survey. All participants had to fill out the Informed Consent Form. The ethical principles of the Declaration of Helsinki were followed.

Materials and procedure

The final application of the survey had a sample of 487 surveys completed by 791 participating researchers ($e = +/- 3.1$ and $1-\alpha = 95\%$) between September and December 2021.

The main variables included in the survey were as follows:

Level of importance and use of social media in communication and scientific dissemination. The participants reported their perception of the importance and use of SM in two dimensions: "research generated by the researcher himself or herself" and "research in the educational area." The scale ranged from 1 (very low) to 5 (very high).

Use of social media to inform society of partial or total research results. This item's response options were a) Yes, as soon as I have something to communicate or disseminate, regardless of whether it is partial or total; b) Yes, only when it is a full result; c) Yes, although it depends on the type of result; d) Yes, but very occasionally, not constantly; and e) No, never.

Use of a social network or platform for academic purposes in the last six months. The answer options were yes or no. Those who answered yes were asked to indicate their main reason for using social media for academic purposes. Those who answered no were also asked about their reasons for not doing so.

Social media platforms to communicate science. The participants had to select the three main SM or platforms they used to communicate and disseminate scientific advances.

Perception of training and actions in academic communication on social media. The degree of agreement was measured with five items (e.g., more information should be offered on the importance of social media for academic growth). The response options ranged from 1 (no agreement) to 5 (strongly agree).

Sociodemographic characteristics. Finally, age, sex, and academic characterization were recorded, in addition to whether the respondent's university was public or private. We also asked if each respondent belonged to a research group attached to a Spanish university, what his or her production area was, whether he or she possessed a doctoral degree, if he or she had completed a six-year research term, and obtained accreditation.

Results

The sample registered researchers affiliated with 74 different Spanish universities. According to the main branch of knowledge associated with their current degree, the most represented field was the social and legal sciences, comprising 72.34% of the sample. A total of 94.33% of researchers had a doctorate, and 91.01% currently belonged to a research group affiliated with a Spanish university. A total of 86.3% had some type of accreditation. In comparison, only 58.88% had a six-year research term recognized by the National Commission for the Evaluation of Research Activity (CNEAI) in Spain. The complete characteristics of the sample are displayed in Table 2.

Researchers in the educational area mainly focus their research on higher education, corresponding to 62.85% of the respondents who selected this area as their core interest when researching and publishing academically. Primary and secondary education were mentioned by 14.25% and 16.26%, respectively. Pre-school was only mentioned by 3.21% and vocational training by 1.21%.

Table 2. Demographic Information of Respondents

Variable	Number	%
Age		
Less than 30 years	17	3.49
Between 31 and 40 years	120	24.64
Between 41 and 50 years	180	36.96
Between 51 and 60 years	123	25.25
More than 60 years	47	9.66
Gender		
Woman	256	52.56
Male	226	46.41
Other	5	1.01
Doctorate/PhD		
Yes		94.33
No		
Research group		
Yes		91.01
No		
Year of completion of the doctorate		
Less than 5 years	100	21.79
Between 6 and 10 years	101	22.01
Between 11 and 15 years	76	16.60
Between 16 and 20 years	87	218.95
More than 20 years ago	95	20.71
Type of university		
Public	424	87.10
Private	63	12.90
Six-year terms		
Yes	285	58.89
No	199	41.12
ANECA accreditation		
Yes	366	79.74
No	93	20.26
Number of six-year terms		
None	202	41.48%
One	103	21.15%
Two	81	16.64
Three	63	12.93
Four	27	5.54
Five	8	1.64

Six	3	0.62
Accreditation		
Assistant doctor	31	7.83
Hired doctor	122	30.81
Professor at private university	17	4.29
Holder	164	41.41
Professor	62	15.66
Branch of knowledge		
Health sciences	67	13.76
Sciences	19	3.91
Arts and humanities	52	10.67
Social and legal sciences	317	65.09
Engineering and architecture	32	6.57

Importance and use of social in communication and scientific dissemination

The level of importance of SM in disseminating research results was measured on two levels: the researcher's self-perception of use and their perception of the use by the educational area as a whole. The level of importance of social media in the communication of educational area ($M = 3.54$; $SD = 1.06$) is perceived to be significantly higher than for the dissemination of the results by the researcher ($M = 3.33$; $SD = 1.21$; $t(486) = -4.51$; $p = .001$, 95% CI [-0.307, -0.121]).

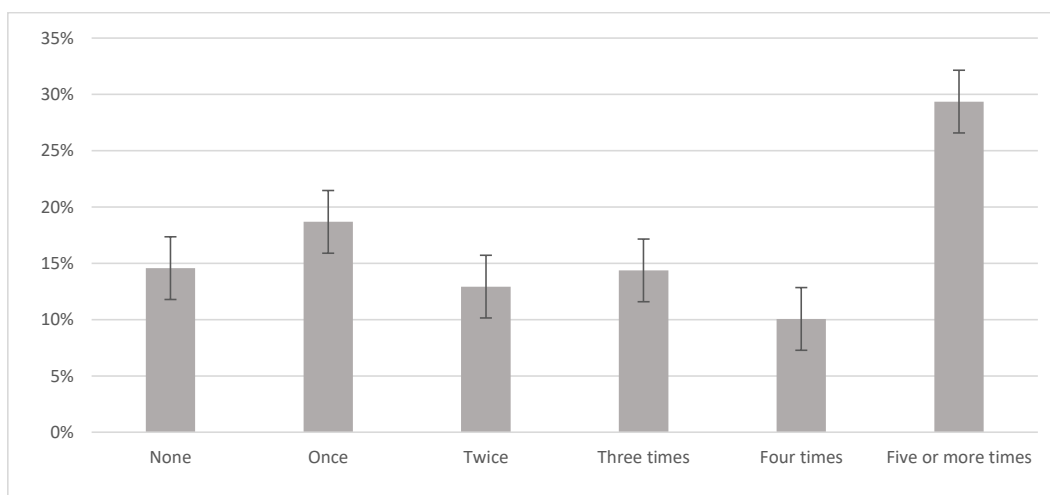
Regarding the level of use, we also differentiated between the researcher's own activity ($M = 2.88$, $SD = .83$) and his or her perception of the area of education ($M = 2.90$, $SD = .95$). No significant differences were observed between the researcher's perception and that of the area ($t(486) = .29$; $p = .772$).

Notably, a difference of perception was observed between researchers' perceptions and attitudes to disseminating research in social media and the perception of the importance attributed to the education area. Specifically, researchers differed in the level of importance they ascribed to social media to disseminate research in the education area ($M = 3.33$, $SD = 1.21$) and the level of their use of social media for the communication and academic dissemination of their own research ($M = 2.92$, $SD = 1.23$). This difference is significant since the perception of the importance of social media to communicate science is greater than the perceived level of use for doing so ($t(486) = 9.16$, $p = .001$, 95% CI [-0.499, -0.323]). The same holds for the perception of researchers in the educational area: the level of importance ($M = 3.54$, $SD = 1.06$) is greater than the level of perceived use ($M = 2.90$, $SD = .95$), $t(487) = 13.22$, $p = .001$, 95% CI [0.545, 0.736]).

Use of a social network or platform for academic purposes

A total of 91.97% of respondents indicated that they had used some social media for academic purposes in the last six months, with no significant differences by age or type of university ($p>.082$). Likewise, the frequency of weekly use among 29.36% of cases was more than five times a week, which suggests that at least one-third of people use social media very frequently (See Figure 1). No correlation was observed between the use of social media and age ($p>.822$).

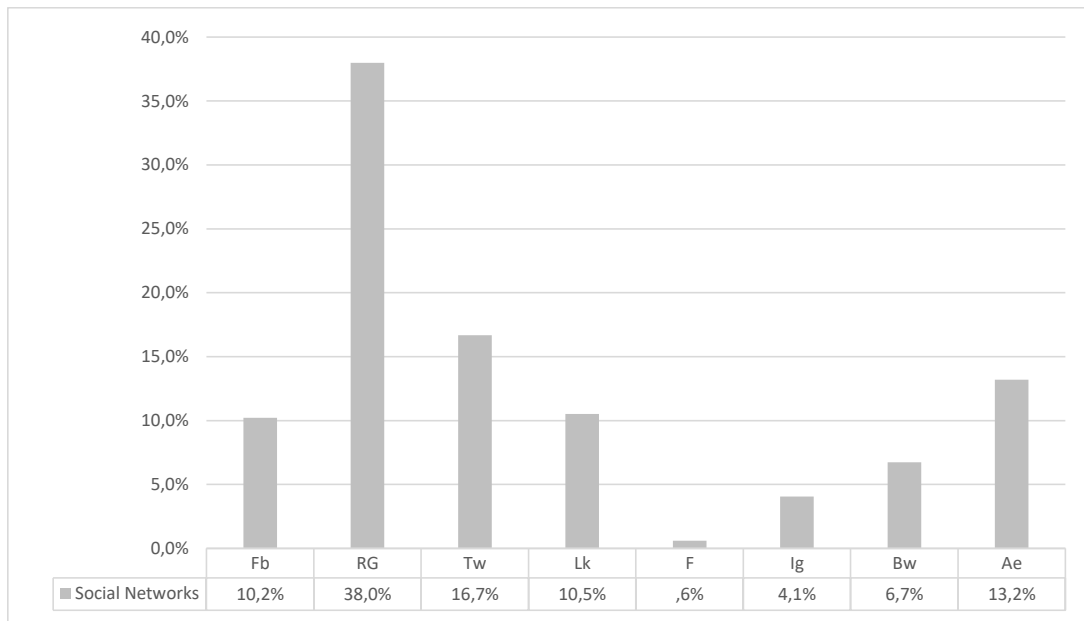
Figure 1. Frequency of weekly use of social media platforms



Social media platforms to communicate science

As shown in Figure 2, among respondents who used social media to communicate or disseminate scientific advances, ResearchGate was the main social media platform, followed by Twitter and Academia.edu.

Figure 2. Level of use of the main social media platforms



Note. Fb = Facebook; RG = ResearchGate; Tw = Twitter; Lk = LinkedIn; F = Fightshare; Ig = Instagram; Bw = Blog or personal website; Ae = Academia.edu.

The main reasons for using social media for academic purposes

Among the reasons that researchers indicated for academic use of social media, professional visibility was the priority for 47.62%. Other reasons were to build academic or professional networks and to increase citations (see Table 3). Conversely, the main reason for not using them was not having the time to make use of these resources (43.18%).

Table 3. Reasons for using or not using social media for academic purposes

Reasons for using SNs				Reasons for not using SNs			
		Frequency %				Frequency %	
Improvement of my working conditions	13	2.93	I do not have time to use these resources	19	43.18		
Construction of networks with other academics or professionals in the sector	100	22.57	I am not interested or do not think it is useful for what I do academically	14	31.81		
Greater professional visibility	211	47.62	I do not have the necessary knowledge for it	3	6.81		
Greater number of citations of the works that I publish	84	18.96	I do not think this will help me increase the visibility of my academic work	6	13.63		
Other reasons	35	7.91	I do not consider it useful to contact social groups	2	4.54		
Total	443	100	Total	44	100		

Use of social media to publicize research

Concerning when social media are used to communicate academically, most researchers agreed on using it to publicize their work. Specifically, 81.93% affirmed that every time they obtain partial or total results in some research or that are associated with their academic work, they make use of social media to make them known to society. Most researchers shared only a full result (32.44%), while 18.05% never did so.

Perception of training and actions in academic communication on social media

Finally, there is high support for the idea that most teachers and researchers do not have a clear communication strategy on social media, with 40% agreeing and 35% strongly agreeing (see Table 4).

Table 4. Degree of agreement with statements about training in the area

Statement	Not at all (%)	Little (%)	Neither much nor little	Agree (%)	Strongly (%)
I consider it necessary to train university professors so that they know how to design their academic profiles on social networks	3.69	6.57	16.06	41.68	32.03
More information should be offered on the importance of social media for academic growth.	3.08	4.52	21.35	42.71	28.33
A large majority of teachers and researchers do not have a clear communication strategy on social media	2.25	4.31	17.86	40.04	35.52
I would be interested in signing up for a training course that helps me improve my use and academic visibility on social media	11.08	16.22	17.86	36.96	17.86
University institutions in Spain promote plans and strategies that favour the use of social media by their assigned teachers	15.81	35.52	35.11	11.90	1.64

In addition, 71.75% of researchers agreed or strongly agreed with the idea that more information should be offered on the importance of social media for academic growth. Also, high support was expressed for the notion that there is a need for training teachers in the design of their academic profiles on social media. A total of 73.71% of respondents agreed or strongly agreed with this. Relevantly, these data contrast with the results for the final statement, with only 13% agreeing or strongly agreeing that universities currently promote plans and strategies for the use of social media by academics. It is noteworthy that given the interest shown, only 27% stated they would be interested in signing up for a course on social media use.

Discussion

Nowadays, society is witnessing how the impact of digital platforms is changing the role of university faculty. Social media are presented as a tool that can be used for academic purposes, becoming a space of opportunity for researchers to improve the visibility of their work, increasing its reach and dissemination among audiences.

Our analysis of the attitudes and practices of use among researchers in education has shown that there is high support for the use of social media for academic purposes and that these researchers report high use levels and frequencies. Regarding the measures of social media importance and level of use, we find that slightly more than a third of researchers consider social media important in disseminating research results in the educational area, and this corresponds to their reported level of use. This percentage is comparable to the one in similar studies in different countries [52, 53].

Furthermore, it was observed that most researchers prefer to publish full results over partial results. This is interesting because it shows a tendency that might be related to a cultural pattern that should be analyzed in further research.

Overall, the main limitations of the academic use of social media highlighted by our respondents were lack of time and little interest in its use, which also aligns with research from other countries [24]. In addition, although the percentages were low in our study, some people indicated that they do not know how to use social media, which is also a prominent aspect and a priority of institutional strategies [54]. Among the main motivations for making academic use of social media, we found that researchers in the educational field consider professional visibility and establishing academic networks and contacts as the most relevant outcomes. This tendency has been observed in other studies where similar reasons are pointed out [6, 24], supporting the global idea of an interconnection between interconnectivity and work productivity.

Notably, data showed that the perception of the importance of social media is greater than the actual use of them, whether at the level of discipline or individual researcher. These could indicate that the narrative of academic use of social media is somehow accepted with a positive valence but not broadly integrated as a behavior. Specifically, with respect to the practices of sharing results, the number of researchers

who share partial or total results on social media is still low. We found that lack of time or the idea that they do not truly contribute to making their work visible are still strong perceptions that inform about researchers' minimal social media use.

Another important result is that the high support for the idea that most teachers and researchers do not have a clear communication strategy on social media indicates that it is necessary to continue researching the subject and promoting clear guidelines and specific training in the area. Likewise, sharing academic results on social media is not considered a main reason to improve working conditions, which may be related to the fact that certain researchers' social media use is not as high as others.

In sum, while the general perception is that using social media to disseminate academic results is important, this does not necessarily translate into a high-quality and effective use of them. Still, several perceptions are limiting the actual practices of academic use of social media platforms. Even though there is an important desire for greater education and training in the area, the actions promoted by institutions are viewed as sufficient to favor their academic use.

Implications, future research, and limitations

The main perceptions that motivate or limit the academic use of social media in the education sector of researchers have been described. Our work thus contributes to the ongoing task of rethinking the attitudes and practices regarding these networks with a view to promoting new digital skills [55, 56].

Although our respondents reported their awareness of the importance of social media use in sharing and disseminating scientific communication, there are still important limitations to their constant use. This is one of the key aspects mentioned by previous research [25], which concerns not only the individual level but also relational and cultural

factors. From the data of the studies in Spain, globally, the trend is that the most active users of social media are mainly young professors and Ph.D. students, perhaps suggesting an interesting change related to the culture of the Spanish academy.

In line with other works done in the same context, users mainly use social networks to get in touch with other academics, disseminate their research results and follow the activities of other researchers [57]. Therefore, communication in digital media is highly oriented to reach research peers and evaluation agents [58]. It is observed that in the digital environment, research teams are more concerned with the dissemination of science among scientists than with communication with the public [42, 59]. Moreover, it somehow adds to the global trends of publishing in impact journals that are usually active in digital media as well. Consequently, future studies should investigate existing strategies and protocols since research in this area shows that the amount of shared data on social seems to vary according to the disciplines of researchers and their specific field protocols; other impacts stem from their age, digital management skills, perceptions of difficulty and benefits and, of course, cultural factors [38].

The arrival of digital technology in science education and its popularization have catalyzed the need for teachers and researchers to be trained and adapted to the new advances required. In this sense, further research should investigate ways of empowering and training educational researchers to optimize their communication of research outcomes using social media.

Finally, there are limitations in this study that should be recognized. First, although there was high participation in our survey, as in any online research, there was limited control over the responses, and there are limitations inherent to this method. In the presented questions about reasons for the use or non-use of social media, closed options were offered. Although the option of responding openly to "others" was provided,

this design could be improved in future studies to form more comprehensive analytical clusters. Moreover, this study explored only the viewpoints of researchers regarding the use of social media for communicating science. To ensure the successful adoption of social media in science communication, both academics and policymakers need to cooperate. Thus, future studies might replicate our research design to determine the corresponding point of view of policymakers. Because representation by universities was low, it was not possible to investigate the differences in the culture and institutional strategy between universities to observe their impact on practices in the medium term.

Finally, future research should also deepen in more specific differentiation between the nature of perceptions about the abilities to use social media at an individual level (i.e., 'self-efficacy' as proposed by other authors [18] and as an area (i.e., education). Exploring this aspect could confirm a gap between the ideal and real capabilities in this area.

Overall, this study provides new insights into social media's impact on education academics and highlights the key variables that facilitate or limit the academic community's use of social media.

Declarations

Competing interests. The authors declare that they have no competing interests.

Authors' contributions. CA oversaw the processing, data analysis, and review of the theoretical framework and development of conclusions. RM supported the elaboration of the theoretical framework proposed in this work and the elaboration of conclusions. Both authors worked on the style adjustment according to the submission guide.

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Availability of data and materials. The datasets generated and analyzed during the current study are available in the Figshare repository: <https://figshare.com/projects/Comscienciaeduspain/117672>.

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