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The relationship of Twitter with teacher credibility and motivation in university students

Relación de la red social Twitter con la credibilidad docente y la motivación del alumnado universitario

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ABSTRACT

This paper aimed to analyse the perceptions of university students in relation to the credibility of university instructors according to the tweets posted on their Twitter profiles and the academic motivation that these can generate. Thus, students' perceptions of teacher credibility are affected by what instructors post on their social media profiles. The participants in the study were 166 students from the Faculty of Education Sciences at the University of Seville, carried out using a quasi-experimental methodology for which three Twitter profiles for a university professor were created with professional, social and mixed content. For the analysis of the results, normality and homoscedasticity tests were carried out on the sample to decide which statistical tests to use. The most salient results indicated that students perceived the professional profile as more competent, more caring, and more trustworthy, followed by the mixed profile and, lastly, by the social profile. Positive correlations were also found between students who perceived the university professor as reflected in the professional profile as credible in their academic motivation. The findings and their practical implications for instructors are discussed in terms of how they can incorporate Twitter into their teaching, considering the needs of their students to enhance their learning.

RESUMEN

El presente trabajo pretendió analizar las percepciones del alumnado universitario en relación con la credibilidad del profesorado universitario según los tweets publicados en sus perfiles de Twitter y con la motivación académica que estos pueden generar. Así, las percepciones de los estudiantes sobre la credibilidad de los docentes se ven afectadas por lo que estos publican en sus perfiles de redes sociales. Los participantes del estudio fueron 166 estudiantes de la Facultad de Ciencias de la Educación de la Universidad de Sevilla, llevándose a cabo mediante metodología cuasiexperimental para lo que se crearon tres cuentas de Twitter de una profesora universitaria con contenido profesional, social y mixto. Para el análisis de resultados se ejecutaron pruebas de normalidad y homoscedasticidad de la muestra para decidir las pruebas estadísticas a emplear. Los resultados más destacados indicaron que los estudiantes percibieron como más competentes, con mejor voluntad y más confiables los perfiles profesionales, seguidos de los perfiles mixtos y, en último lugar, de los perfiles sociales. Asimismo, se encontraron correlaciones positivas entre los estudiantes que percibieron a la profesora universitaria del perfil profesional como creíble y su motivación académica. Se discutieron los hallazgos logrados y sus implicaciones prácticas para los docentes en cuanto que pueden incorporar Twitter en su docencia, considerando las necesidades de sus estudiantes para potenciar su aprendizaje.

KEYWORDS | PALABRAS CLAVE

Credibility, social networks, Twitter, motivation, perceptions, communication.
Credibilidad, redes sociales, Twitter, motivación, percepciones, comunicación.

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1. Introduction and state of the art

In recent years, social networks have become an integral part of our daily lives (iabSpain, 2020). These platforms have not only changed the way we communicate and socialise, but also our ability to produce and share information with the rest of the world (García-Martín & García-Sánchez, 2015; Ricoy & Feliz, 2016). Although not originally created for educational purposes, social networks have gradually evolved into a new channel for communication between instructors and students across Spanish universities (Fondevila et al., 2015). As highlighted by Gettman and Cortijo (2015), social networks have become important communication tools for professors and college students, providing both parties with new opportunities for contact and interaction, as well as for professional development (Greenhow et al., 2020), educational innovation (Matosas-López et al., 2021; Rodríguez-Gallego et al., 2019), and improved academic performance (Rodelo & Lizárraga, 2018). In short, social networking sites enable instructors and students to remain in constant contact, moving beyond the conventional classroom and creating new teaching and learning environments (Ean & Lee, 2016). That said, their use will largely depend on students' perceptions of their pedagogical efficacy (Deaves et al., 2019), which has been demonstrated during the current COVID-19 pandemic (Greenhow et al., 2021).

One of the most widely used social media sites in higher education is Twitter (Carpenter et al., 2020), having become the main communication tool university instructors use to interact with their students (Higueras-Rodríguez et al., 2020; Santoveña-Casal & Bernal-Bravo, 2019). In particular, Twitter has emerged as an effective teaching platform in the higher education domain, already proving to be a suitable tool for instructors when sharing information with students (Desselle, 2017). Both parties can benefit from the advantages that Twitter offers in the education sector, most notably its potential to improve teacher–student relationships (Sunday, 2021). From this perspective, the use of Twitter creates a more closely knit classroom environment, thus enriching the teacher–student dynamic (Hull & Dodd, 2017). However, what professors post and share on their Twitter profiles affects students' perceptions of teacher credibility (McArthur & Bostedo-Conway, 2012).

Teacher credibility is defined as whether students perceive their instructor as believable or not (McCroskey, 1992) and encompasses three dimensions: competence, caring, and trustworthiness (McCroskey & Teven, 1999). Teacher competence refers to the student's perception of the instructor's knowledge and mastery of the subject they teach; caring is the degree to which students perceive instructors as showing interest in their wellbeing; and trustworthiness refers to students' perceptions of teacher reliability and kindness (Teven & McCroskey, 1997). In this regard, Johnson (2011) found that students who viewed an instructor's Twitter profile featuring social content rated them higher in credibility than those students who viewed the Twitter profile of an instructor posting academic content. In contrast, DeGroot et al. (2015) reported that an instructor's Twitter profile with professional content was deemed more credible than a profile with social or mixed content, also highlighting that a profile with mixed content was peceived as more credible than a profile with social tweets. Lastly, Clark-Gordon and Goodboy (2020) found that an instructor who tweeted professional information was perceived as higher in competence, whereas an instructor who tweeted personal information was perceived as more caring.

Teacher credibility also represents a key variable that impacts upon the teaching–learning process (Finn et al., 2009). From this perspective, teacher credibility affects the student's academic motivation (Martin et al., 1997), considered one of the most significant factors in student learning (Zheng, 2021). According to Brophy (2004), student motivation is defined as both a trait and a state. Motivation as a trait is a general and lasting predisposition towards learning, that is, it refers to an overall level of motivation across all learning situations, whereas motivation as a state refers to a specific learning situation and approach towards a particular class, task or content which is situation-dependent and ever-changing. Therefore, student motivation is, to an extent, influenced by environmental and contextual variables such as teacher behaviour (Jiang et al., 2021). As such, it is important to analyse students' perceptions of teacher behaviour in relation to academic motivation (Chan et al., 2021). Thus, to increase student academic motivation, instructors must be perceived as credible professionals by their students (Frymier & Thompson, 1992).

In terms of the influence that instructors' social media profiles have on the teaching–learning process, various research studies report that what instructors post on their Facebook profiles affects the student's

learning (Aubry, 2013; Imlawi & Gregg, 2014; Mazer et al., 2007; Saylag, 2013). Although most of the research to date on Twitter use in education has focused on higher education institutions (Greenhow et al., 2020), no published studies have been found which examine the effect of instructors' Twitter profiles on students' perceived credibility in relation to their academic motivation within the Spanish university context. Two research questions have emerged from the proposed theoretical framework:

- What type of content posted on Twitter by university instructors is likely to result in them being perceived by students as more credible?
- Is there a correlation between students' perceived teacher credibility according to the tweets posted by university instructors on their Twitter profiles and students' academic motivation?

2. Material and methods

2.1. Objectives

The overall objective of this study was to identify students' perceptions of teacher credibility based on the tweets that university instructors posted on their Twitter profiles. This overall objective can be broken down into two specific objectives:

- To establish which of the university instructors' Twitter accounts – professional, social, or mixed – are more credible based on the students' perceptions of the tweets posted on these profiles.
- To analyse the correlation between students' perceived teacher credibility based on tweets posted by instructors on their Twitter profiles and student academic motivation.

2.2. Research hypotheses

For the first specific objective, three hypotheses were formulated:

- H1. The university instructor's professional Twitter profile will be perceived as more credible by students than the university instructor's social Twitter profile.
- H2. The university instructor's mixed Twitter profile will be perceived as more credible by students than the university instructor's social Twitter profile.
- H3. The university instructor's professional Twitter profile will be perceived as more credible by students than the university instructor's mixed Twitter profile.

For the second specific objective, three hypotheses were developed:

- H4. There will be no correlation between students' perceived teacher credibility upon viewing the university instructor's social profile and their academic motivation.
- H5. There will be a positive correlation between students' perceived instructor credibility upon viewing the university instructor's professional profile and their academic motivation.
- H6. There will be a positive correlation between students' perceived instructor credibility upon viewing the university instructor's mixed profile and their academic motivation.

2.3. Research design

Three Twitter profile types were created for the purpose of this study: a profile with social content, another featuring professional content, and a third with mixed content. The social profile shows tweets relating to the instructor's personal life, including family, friends, and non-academic activities; the professional profile contains tweets about the instructor's teaching and research work; and the mixed profile is a combination of the instructor's professional and social tweets. Twenty-five (25) tweets were initially drawn up for the professional profile, and 25 tweets were developed for the social profile. Following evaluation by nine experts, the final count was 17 tweets for the social profile; 22 tweets for the professional profile; and 19 tweets for the mixed profile. Subsequently, a group of students (N=65) assessed (a) the level of social content across all profiles; and (b) the level of professional content, reporting statistically significant differences among them (χ^2=283.799, p<0.01).

Examples of social profile tweets include "There's no better way to start the day than with a morning gym session" and "This evening dinner with friends and then onto karaoke"; and examples of professional profile tweets are "From 8 to 10 August, Indiana University (United States) will host the International Conference on Educational Technology" and "In today's class on Basic Psychological Processes, I explained

Classical Conditioning. In this video you can watch the experiment conducted by Pavlov, pioneer of Classical Conditioning: https://www.youtube.com/watch?v=kuAVOQixBI8".

To minimise the number of study variables, common Spanish names and surnames were used for the university instructors' Twitter accounts: Laura García for the social profile; Marta García for the professional profile; and Cristina García for the mixed profile. The profile picture was a beach sunset for all accounts, given that a photo of each instructor could affect the assessments of credibility made by the students (Sutherland et al., 2017). Participants were randomly assigned to the three experimental conditions: Twitter accounts of a university instructor containing professional, social, and mixed content (one account per type).

2.4. Research variables

2.4.1. Independent variable

- Central traits of the instructor reflected in their respective Twitter account at three defined levels: professional traits, social traits, and mixed traits.

2.4.2. Dependent variables

- Teacher credibility. This can be defined as the student's perception of whether the instructor is credible or not and encompasses three dimensions: competence, caring, and trustworthiness (McCroskey & Teven, 1999). Teacher credibility is the primary variable in the student's perception of the instructor, impacting heavily on teaching–learning processes (Froment et al., 2020).
- Academic motivation. According to Brophy (2004), motivation exhibited by students can be classified as both a trait and a state: motivation as a trait is a general and lasting predisposition towards learning, whereas motivation as a state is the student's attitude towards a class, task, or teacher in particular, and is affected by the student's perceptions of the instructor (Lin et al., 2017).

2.5. Participants

Purposive non-probability sampling (on the basis on accessibility) was used. Specifically, instructors teaching on the aforementioned degree programmes and willing to take part in the research were recruited, thus enabling access to students. This experimental study included 166 participants from the Faculty of Education Sciences at the University of Seville aged between 18 and 24 years (M=20.75, SD=2.47), namely students enrolled in the first, second and third years of the following undergraduate programmes: Primary Education, Early Childhood Education, and Education Studies. Participant distribution by degree was 29 in Primary Education (17.5%); 94 in Early Childhood Education (56.6%); and 43 in Education Studies (25.9%). The number of students by academic year was 49 for Year 1 (29.5%); 50 for Year 2 (30.1%); and 67 for Year 3 (40.4%). The distribution of participants by sex was 146 females (88%) and 20 males (12%).

Among the 166 participants, 144 had their own Twitter profile (68.7%), whereas 52 did not have a Twitter account (31.3%). Regarding frequency of use among participants with a Twitter account, 24.7% confirmed they log into their Twitter profile every day; 19.9% hardly ever log into their Twitter account; 12% never go into it; and 12% only occasionally go into their Twitter profile. Participants reported using Twitter 2.98 hours a week on average (ST=3.16) and usually post an average of 2.60 tweets a week (SD=2.86). 51.2% of participants reported never having searched for a university instructor on Twitter, whereas 17.5% confirmed having done so. Furthermore, 60.2% reported not following any university instructors on Twitter, whereas 8.4% did so. Specifically, 11 participants (6.6%) followed one; two participants (1.2%) followed two; and one participant (0.6%) followed four instructors.

As for students' opinions about universty instructors using Twitter, 87.3% of participants considered it appropriate for university instructors to have their own Twitter profiles, whereas 12.7% deemed it inappropriate. However, 54.2% thought it inappropriate for university instructors to use Twitter as a means of communicating with students, whereas 45.8% found it appropriate.

2.6. Instruments

Socio-demographic data questionnaire. The research team developed and implemented a socio-demographic data questionnaire which captures information about sex, age, studies undertaken by students, and academic year. This survey also includes questions relating to the frequency and use of Twitter by participants in their daily lives, as well as questions that elicit students' opinions about how university instructors use Twitter.

Source Credibility Measure (Escala de Credibilidad; Froment et al., 2019). This tool includes 18 bipolar adjectives, specifically six per dimension: "competence", "caring", and "trustworthiness". The respondent is asked to rate their perception of the instructor on a scale ranging from one to seven, considering that the closer the number of adjectives, the more certain the teaching evaluation. The measure was submitted to reliability analysis, yielding a Cronbach's alpha of .98 for the global scale.

Motivated Strategies for Learning Questionnaire (Cuestionario de Estrategias de Aprendizaje y Motivación; Martínez & Galán, 2000), selecting the academic motivation scale only. This scale comprises 31 items, with responses ranging from one ("That doesn't describe me at all") to seven ("That describes me perfectly"). The questionnaire was subjected to internal consistency analysis, yielding a Cronbach's alpha of .97 for the global scale.

2.7. Procedure

Participants were first given an informed consent form to complete, which detailed the nature and aim of the research; participant anonymity and data confidentiality were also ensured. The students were handed the socio-demographic data questionnaire; an instructions worksheet outlining the steps to follow to access the university instructors' Twitter accounts; the Source Credibility Measure; and the academic motivation scale. Participants were randomly assigned to each experimental situation: N=55 to the instructor's social profile; N=55 to the instructor's professional profile; and N=56 to the instructor's mixed profile.

Next, participants were asked to complete the socio-demographic data questionnaire. They were then instructed to sign into their own Twitter accounts using a computer or mobile phone and search for the instructor described on the s worksheet. They were given four minutes to read all the tweets on the corresponding profiles; the instructions sheet included a username and password which participants without an account could use to access Twitter. Lastly, once they had read the posted tweets, they were asked to first complete the Source Credibilty Measure followed by the academic motivation scale.

The principal investigator was joined in the classroom by an additional investigator, who had the task to monitor and make sure that each participant viewed a specific profile, and that no information was being exchanged between participants. Once the study had ended, the students were thanked for taking part and asked to keep their participation in the experiment confidential.

2.8. Data analysis

Normality and homoscedasticity tests were carried out on the sample to decide which statistical tests to use. Non-normal distribution was identified, as was non-homogeneity of variance for the main study variables (Kolmogorov–Smirnov and Shapiro–Wilk tests, $<.05$). The decision was taken to perform non-parametric tests as part of the statistical analyses for this research.

For the first specific objective, namely H1, H2 and H3, non-parametric Kruskall–Wallis tests were performed to compare independent groups, followed by the respective post hoc pairwise Mann–Whitney U tests. Additionally, for those comparisons yielding statistically significant differences, an r effect size was calculated as per the threshold values established by Cohen (1988): .10 to .30 as small; .30 to .50 as medium; .50. to .70 as large; and greater than .70 as very large. Lastly, Spearman's rank-order correlation was performed to address the second specific objective, namely H4, H5 and H6.

3. Analysis and results

3.1. Differences between students' perceived teacher credibility by viewed Twitter profile

Table 1 outlines the descriptive results of students' perceived teacher credibility for each Twitter profile viewed. As shown below, students perceived the professional profile as most credible, followed by the mixed profile and, lastly, the social profile.

Table 1. Descriptive results of teacher credibility for each Twitter profile

Twitter profiles	N	Minimum	Maximum	Mean	SD
Social profile (Laura García)	55	18	68	51.78	9.75
Professional profile (Marta García)	55	81	126	103.25	11.19
Mixed profile (Cristina García)	56	37	126	83.59	22.92

Table 2 shows the descriptive results of all three perceived teacher credibility dimensions according to each viewed Twitter profile. Students perceived the professional profile as more competent, more caring, and more trustworthy, followed by the mixed profile and, lastly, the social profile.

Table 2. Descriptive results of the teacher credibility dimensions for each Twitter profile

	Competence				Caring				Trustworthiness			
Twitter profiles	Min.	Max.	M	SD	Min.	Max.	M	SD	Min.	Max.	M	SD
Social (Laura García)	6	24	17.27	4.39	6	22	14.81	4.19	6	24	19.69	3.63
Professional (Marta García)	25	42	36.01	4.34	22	42	33.03	4.24	26	42	34.19	4.05
Mixed (Cristina García)	6	42	28.55	9.26	12	42	26.27	7.43	13	42	28.75	8.05

Statistically significant differences were found for students' perceptions of teacher credibility according to the viewed Twitter profile; this was the case for global credibility and across all three dimensions (X^2 Kruskal–Wallis=202.45, p<.01) (Table 3).

Table 3. Comparisons between Twitter profiles for teacher credibility

	Chi-square	df	*p*
Credibility	202.45	5	.000**
Competence	193.42	5	.000**
Caring	206.57	5	.000**
Trustworthiness	184.56	5	.000**

Note. **p<.01.

Table 4 shows the descriptive and inferential results for the comparisons between perceived teacher credibility by students who viewed the instructors' Twitter profiles. Students perceived the instructor's professional profile as more credible than that of the instructor's social profile (Mann–Whitney U test=.000, p<.01). Similarly, students perceived the instructor with the professional profile as more competent (Mann–Whitney U test=.000, p<.01); more caring (Mann–Whitney U test=1.500, p<.01); and more trustworthy (Mann–Whitney U test=.000, p<.01) than the instructor with the social profile. Regarding the effect size calculation, the differences in teacher credibility perceived by students who viewed the professional profile and social profile, respectively, were very large (r=.86). The effect size differences in teacher competence, caring, and trustworthiness perceived by students who viewed the professional profile and social profile, respectively, were also very large (r=.86, for competence; r=.86, for caring; and r=.86, for trustworthiness). Thus, H1 is accepted. Students perceived the instructor's mixed profile as more credible than that of the instructor's social profile (Mann–Whitney U test=367.000, p<.01). Similarly, students perceived the instructor with the mixed profile as more competent (Mann–Whitney U test=438.000, p<.01); more caring (Mann–Whitney U test=297.000, p<.01); and more trustworthy (Mann–Whitney U test=536.000, p<.01) than the instructor with the social profile. Regarding the effect size calculation, the differences in teacher credibility perceived by students who viewed the mixed profile and social profile, respectively, were large (r=.64). The effect size differences in teacher competence, caring, and trustworthiness perceived by students who viewed the mixed profile and social profile, respectively, were also large (r=.60, for competence; r=.69, for caring; and r=.55, for trustworthiness). Thus, H2 is accepted.

Students perceived the instructor's professional profile as more credible than that of the instructor's

mixed profile (Mann–Whitney U test=714.500, p<.01). Similarly, students perceived the instructor with the professional profile as more competent (Mann–Whitney U test=760.000, p<.01); more caring (Mann–Whitney U test=626.000, p<.01); and more trustworthy (Mann–Whitney U test=904.500, p<,01) than the instructor with the mixed profile. Regarding the effect size calculation, the differences in teacher credibility perceived by students who viewed the professional profile and mixed profile, respectively, were medium (r=.45). The effect size differences in teacher competence, caring, and trustworthiness perceived by students who viewed the professional profile and mixed profile, respectively, were also medium (r=.42, for competence; r=.50, for caring; and r=.34, for trustworthiness). Thus, H3 is accepted.

Table 4. Comparisons between university instructor profiles for teacher credibility

	Social profile		Professional profile	Social profile		Mixed profile	Professional profile		Mixed profile
	U	*p*	*r*	*U*	*p*	*r*	*U*	*p*	*r*
Credibility	.000	.000**	.86	367.000	.000**	.64	714.500	.000**	.45
Competence	.000	.000**	.86	438.000	.000**	.60	760.000	.000**	.42
Caring	1.500	.000**	.86	297.000	.000**	.69	626.000	.000**	.50
Trustworthiness	.000	.000**	.86	536.000	.000**	.55	904.500	.000**	.34

Note. **p<.01.

3.2. Correlation between teacher credibility and academic motivation

Table 5 shows the relationship between teacher credibility and students' academic motivation according to the viewed Twitter profile. Teacher credibility (r=.06, p>.05), competence (r=.10, p>.05), caring (r=.15, p>.05), and trustworthiness (r=-.15, p>.05) perceived by students who viewed the instructor's social profile does not correlate with academic motivation. Thus, H4 is accepted. Teacher credibility (r=.58, p<.01), competence (r=.54, p<.01), caring (r=.49, p<.01), and trustworthiness (r=.51, p<.01) perceived by students who viewed the instructor's professional profile correlates positively with academic motivation. Thus, H5 is accepted. Teacher credibility (r=.59, p<.01), competence (r=.65, p<.01), caring (r=.36, p<.01), and trustworthiness (r=.53, p<.01) perceived by students who viewed the instructor's mixed profile correlates positively with academic motivation. Thus, H6 is accepted.

Table 5. Correlation between teacher credibility and students' academic motivation

Twitter profiles	Credibility Motivation	Competence Motivation	Caring Motivation	Trustworthiness Motivation
Social profile (Laura García)	.06	.10	.15	-.15
Professional profile (Marta García)	.58**	.54**	.49**	.51**
Mixed profile (Cristina García)	.59**	.65**	.36**	.53**

Note. *p<.05. **p<.01.

4. Discussion and conclusions

The main aim of this study was to identify students' perceptions of teacher credibility based on the tweets posted by university instructors on their Twitter profiles. Regarding the first specific objective, the most salient results indicated that students perceived the professional profile as more credible, followed by the mixed and social profiles. This coincides with DeGroot et al. (2015), who found the professional profile to be perceived as the most credible, followed by the mixed and social profiles. However, our results contradict Johnson (2011), who found the social profile to be rated higher in perceived credibility than the professional profile. Interestingly, our findings both coincide with and contradict Clark-Gordon and Goodboy's (2020) study: on the one hand, professional profiles were also rated highest in perceived competence, yet on the other hand, these authors found that social profiles were not the highest rated for perceived caring.

Two main explanations can be drawn here. First, students are generally of the belief that university instructors' use of social media should be strictly professional, focusing primarily on academic-related matters (Hershkovitz & Forkosh-Baruch, 2017). Therefore, students tend to judge professional profiles more positively over other profile types, especially where we see instructors using social networking

accounts in ways which meet students' expectations of use. Second, and from the perspective that university instructors should use social networks in a professional manner, students might make a more negative evaluation of profiles that contain personal and irrelevant details, or which have no academic grounding; in other words, when students peceive information disclosed by teachers as lacking relevance, they view them in a negative light (Cayanus & Martin, 2004; Kromka & Goodboy, 2021). As Hosek and Presley (2018) argue, if the personal information shared does not address educational or academic matters, it will likely disorient students, and they will perceive these disclosures as being worthless and meaningless, thus affecting students' perceived teacher credibility.

Regarding the second specific objective, positive correlations were found between students' perceived teacher credibility – specifically, for those who viewed the professional and mixed profiles – and students' academic motivation. These findings coincide with earlier studies which indicate that students' perceived teacher credibility correlates positively with their academic motivation (Froment et al., 2021a; 2021b; Kulkarni et al., 2018; Pogue & AhYun, 2006). Similarly, our findings support previous research reporting how the information posted and shared on social networks by university instructors impacts upon student motivation (Aubry, 2013; Mazer et al., 2007; Saylag, 2013). Students generally believe that their motivation is, to some extent, determined by their perceptions of how the instructor conducts themselves (Amiryousefi & Geld, 2021), meaning that student motivation represents an important link between teacher behaviour and student learning (Liu, 2021).

However, no correlations were found between perceived teacher credibility by students who viewed the university instructor's social profile and academic motivation. As Beatty and Behnke (1980) claim, this may be since people are inclined to dismiss sources lacking credibility, meaning that students may have rejected information given by teachers which, in turn, results in little to no impact on their academic motivation. As pointed out by Hovland et al. (1954), for a message to be persuasive and exert an influence upon individuals, the source must be perceived as credible.

In terms of further research avenues, future studies would do well to establish which of the communication options offered by Twitter is the most determining factor in students' perceptions of teacher credibility. Besides the tweets posted by instructors, aspects including the number of tweets, who they follow on Twitter, the trends they tweet about, and how many followers they have could affect students' perceptions of teacher credibility. Thus, another suggestion would be to conduct a corpus-based discourse analysis of tweets using text mining tools and techniques to identify patterns and correlations derived from the wording of said tweets, given that this may impact on students' perceived credibility. Furthermore, students' own perceptions of Twitter may influence how they perceive teacher credibility. Hence, future research could benefit from examining students' perceptions of Twitter and its relationship to their perceptions of teacher credibility. In view of this, future studies should assess whether students' perceptions of teacher credibility based on instructors' Twitter profiles are likely to be affected by other variables such as the instructor's position or role within the university, or by their race or country of origin. Thus, this calls for studies in which students assess teacher credibility through social networks, to ascertain its impact on students' teaching evaluations. In this respect, Elhay and Hershkovitz (2019) argue that a teacher's behaviour outside of the classroom affects how students appraise classroom-based teaching practice. Lastly, and according to the impact that social networks have on the teacher–student relationship as well as on the student's learning (Camas et al., 2021; Sivakumar, 2020), there is a need to train future university instructors on how to best use social networking platforms as a digital educational tool. As suggested by Van-Den-Beemt et al. (2020), teachers should explore the educational benefits that social networks afford, focusing on how they impact the teaching–learning process. This highlights the need for research studies that analyse the relationship between instructors' Twitter profiles and other variables at play in the teaching–learning process, for example, student involvement, interest, and engagement. In short, social networks enrich pedagogical practice in education, making it crucially important to identify how they influence student learning (Fuentes-Cancell et al., 2021).

This research does, however, have some limitations, mainly relating to the sample's characteristics. The sample comprised mostly women; more male participation would have enabled comparisons between both sexes to determine whether sex is a contributing factor in students' perceptions of teacher credibility.

Moreover, only first, second and third-year undergraduate students took part in the research; involving students from across all academic years woud have allowed for additional analyses to likely strengthen the results obtained. Lastly, participating students came from a limited number of education degrees. Inviting participants from across all Education Sciences degree programmes woud have resulted in a more heterogeneous sample and would have enriched the achieved outcomes. Thus, a future research avenue would be to involve more instructors and students in this study.

Despite these limitations, the study findings have, on the one hand, broadened our understanding of the relationship between university instructors' use of social networks and students' perceptions of teacher credibility and, on the other hand, contributed to the advance of knowledge in the field by establishing a relationship between teacher credibility and academic motivation. Furthermore, the findings of this study raise important practical implications. For university instructors to be perceived as credible individuals by their students, they must post and share professional content on their Twitter profiles, that is, content relating to their teaching and research endeavours. As such, Twitter represents another platform via which students make judgements about teacher behaviours. As Qiu et al. (2012) point out, people perceive, form impressions, and make judgements about an individual's behaviour based on the tweets posted on their Twitter profiles. Thus, university instructors need to ensure that their Twitter profiles are as professional as possible (DiVerniero & Hosek, 2011). Furthermore, students have clear expectations about teacher behaviour (Frymier & Weser, 2001), and if students expect their instructors to engage with social networking platforms professionally, and these expectations are being met or exceeded through the instructor's behaviour, then these expectations are likely to break down positively, thus giving rise to more favourable evaluations of teacher credibility.

In summary, how university instructors use Twitter impacts on students' perceptions of teacher credibility, meaning that teachers need to exercise caution when it comes to the type of information they post on Twitter, given that credibility can suffer over the course of one's professional career (Helvie-Mason, 2011). Instructors need to be more aware of the importance attached to their social network use, and of the implications that said use has for students. Specifically, their approach to using social networking platforms can affect their credibility as education professionals and, consequently, the teaching–learning process. As highlighted by Zachos et al. (2018), social network use poses a challenge to the teacher community for promoting interactive environments that enhance student learning. What is more, instructors who envisage using Twitter in their teaching must consider the needs of their students to improve learning (Chapman & Marich, 2021). Therefore, it is important that instructors manage the type of content they share on their Twitter profiles to be perceived as credible teachers and to positively impact teaching–learning processes (Myers & Martin, 2018).

Authors' Contribution

Idea, A.J.G.G, J.C.; Literature review (state of the art), F.F.; Methodology, F.F., A.J.G.G., J.C.; Data analysis, F.F.; Results, F.F., A.J.G.G.; Discussion and conclusions, F.F., A.J.G.G., J.C.; Drafting (original draft), F.F.; Final revisions, A.J.G.G., J.C.; Project Design and sponsorship, A.J.G.G.

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