

Exploring the motives for using social networks for professional development by Spanish teachers

Paula Marcelo-Martínez and Carmen Yot-Domínguez
Didáctica y Organización Educativa, Universidad de Sevilla, Sevilla, Spain, and

Ingrid Mosquera Gende
Didáctica de la Lengua Inglesa, Universidad Internacional de La Rioja, Madrid, Spain

Exploring the motives for using social networks

Received 14 December 2023
Revised 14 March 2024
25 April 2024
26 April 2024
Accepted 26 April 2024

Abstract

Purpose – Social networks (SNs) play a significant role as environments supporting teacher professional development. The purpose of this is to analyze the motivation and participation roles that Spanish teachers have when participating in SNs for their professional development in three professional stages: preservice teachers, beginning teachers and experienced teachers.

Design/methodology/approach – The study uses a mixed-method approach, combining two validated surveys, one applied to 217 preservice teachers and other to 68 beginning teachers and 384 experienced teachers, with 15 interviews. A qualitative exploratory sequential strategy has been followed along with an ex post facto quantitative survey-type study of a descriptive and inferential nature.

Findings – Preservice and beginning teachers use SNs to access materials and resources with which to learn, presenting an observer and passive role in their interaction on SNs. Experienced teachers log in to learn about experiences but begin to participate more actively in SNs for searching for specific resources, establishing contacts with other teachers, contributing with their own educational materials and helping other teachers with their doubts or even forming their own communities.

Originality/value – These findings help understand how the evolution in teacher expertise accompanies the level of involvement in their social network interactions. The results allow us to better understand how different levels of teaching experience influence the way Spanish teachers access and participate in SNs, in some cases consuming and in others producing digital content.

Keywords Social networks, Teacher professional development, Lifelong learning, Informal learning, Preservice teachers, Beginning teachers, Experienced teachers

Paper type Research paper

© Paula Marcelo-Martínez, Carmen Yot-Domínguez and Ingrid Mosquera Gende. Published by Emerald Publishing Limited. This article is published under the Creative Commons Attribution (CC BY 4.0) licence. Anyone may reproduce, distribute, translate and create derivative works of this article (for both commercial and non-commercial purposes), subject to full attribution to the original publication and authors. The full terms of this licence may be seen at <http://creativecommons.org/licenses/by/4.0/legalcode>

This research is part of the following European and statal R&D&I projects • TED2021-129820B-I00. “La transición hacia un aprendizaje digital en la formación de los docentes. Análisis de los entornos digitales emergentes y la transferencia de aprendizaje al aula”, funded by Ministerio de Ciencia e Innovación/Agencia Estatal de Investigación. • PROYEXCEL_00826: “Aprendizaje digital en la formación de los docentes. Análisis de los entornos digitales emergentes y de la transferencia de aprendizaje al aula”, funded by Junta de Andalucía. Consejería de Universidad, Investigación e Innovación.



Introduction

Research on teachers' professional development has shown evidence that teachers go through different stages during their professional careers. Bereiter and Scardamalia (1986) identified varying expertise levels among teachers, linked to their understanding of teaching realities. Huberman (1989) explored teachers' life cycles by experience years, while Van Waes *et al.* (2015) categorized them into novices, experienced nonexperts and experts. Kennedy (2019) and Meirink *et al.* (2009) emphasized that teachers evolve through daily experiences and school interactions. They also do this thanks to their participation in a variety of professional development activities (Jones and Dexter, 2014; Schei and Nerbo, 2015) which have become one of the essential factors for improving the quality of teachers, schools and student learning (Day *et al.*, 2007; Opfer and Pedder, 2011). However, the training needs of teachers are derived from their work context, evidencing the existence of a situated vision of professional development (Putnam and Borko, 2000). It is precisely in the school environment where the vast majority of teachers' learning takes place (Darling-Hammond *et al.*, 2017; Hargreaves, 1994; Little, 1990; Lortie, 1975). Marsick *et al.* (2017) describe workplace learning as a multifaceted process deeply embedded in action and knowledge systems. Atwal (2013) adds that while learning at work can take various forms, including formal structures, it predominantly occurs through unplanned and unintentional experiences.

As teachers advance in their careers, their focus shifts: preservice teachers concentrate on building content knowledge essential for teaching success (Darling-Hammons and Bransford, 2005), while beginners tackle student understanding, classroom management and professional identity formation, marking the start of reflective practice and real-world application of content theory (Feiman-Nemser, 2001; Le Maistre and Paré, 2010). Experienced teachers aim to enhance teaching skills, assume leadership roles and contribute to educational research, thereby broadening their impact on the educational community (Marcelo-Martinez and Mosquera Gende, 2023; Shulman, 1987). Within the specific context that concerns us, in the case of Spain, the characteristics and evolution of teaching professional development are compromised by the demands derived from educational legislation, both state and regional, which demands compulsory continuous training requirements from teachers throughout their professional career (Escudero-Muñoz, 2017; Guarro *et al.*, 2017).

Early research studied teachers in their face-to-face teaching and training contexts (Carpenter *et al.*, 2024a). However, other studies have shown that the contexts which teachers use for their training and professional development have expanded to collaborative, social and virtual spaces (Haythornthwaite, 2019; Marcelo-Martinez and Marcelo, 2022; Prestridge, 2019; Trust *et al.*, 2020). Based on these studies, social networks (SNs) allow teachers to relate to other teaching professionals, constituting what Gee (2005) called "affinity spaces." An affinity space is a physical or digital environment where people come together due to a shared interest, motivation or idea (Mosquera-Gende *et al.*, 2024). Through these networks, teachers not only share and exchange information, but also generate stable support and collaboration groups for their professional development (Mosquera-Gende, 2023).

In the past decade, we have witnessed the rise of new forms of interaction and communication among teachers mediated by digital technologies (Greenhow and Chapman, 2020). The internet has brought about an evolution in the ways teachers access and share information and knowledge (Prestridge, 2019). In particular, SNs have gradually become a complementary or alternative pathway to traditional teacher education systems (Lord and Lomicka, 2014; Rehm and Notten, 2016). The research has focused on discovering to what

extent teachers make use of them (Greenhow *et al.*, 2018). Networks such as Facebook (Loving and Ochoa, 2011; Yildirim, 2019), Instagram (Carpenter *et al.*, 2020; Shelton *et al.*, 2020), X (formerly known as Twitter) (Carpenter and Krutka, 2014) or TikTok (Carpenter *et al.*, 2024b; Hartung *et al.*, 2023; Vizcaino-Verdú and Abidin, 2023) have been analyzed. X/Twitter (formerly, Instagram or Facebook has been considered as virtual affinity spaces (Carpenter *et al.*, 2020; Greenhalgh *et al.*, 2020) through which teachers have the opportunity to share materials and resources, consult with other teachers, exchange ideas, collaborate or reflect on educational content (Tang and Hew, 2017). Some of the reasons that Spanish teachers have given for using SNs in their professional development activities can be grouped into two main factors: “sharing and learning” and “support and belonging.” These two factors respond to the need of many teachers to make use of digital spaces in which to find professionals to be inspired by, resources and materials to apply to their classes and overcome the isolation they may feel in their physical contexts (Marcelo-Martínez *et al.*, 2024). Teachers leverage SNs to form and engage in professional communities, using hashtags to connect and share knowledge (Britt and Paulus, 2016; Krutka and Greenhalgh, 2023; Marcelo-Martínez and Marcelo, 2022; Mosquera-Gende *et al.*, 2024; Staudt Willet, 2019). The algorithms of SNs play a crucial role in these dynamics, supporting the development and maintenance of professional learning communities by strategically filtering and recommending content. This enables teachers to discover and exchange innovative teaching strategies and resources, promoting a culture of collaboration and continuous professional development (Goodyear *et al.*, 2019).

The utilization of SNs by teachers is characterized by diverse uses and interactions, reflecting nonuniform patterns. Prestridge (2019) and Baker-Doyle (2021) have delved into the complexities of these networks, offering valuable insights. However, the distinction between their proposed frameworks and whether they represent distinct types or contribute cumulatively to the development of teacher involvement in SNs remains unclear. Van Waes *et al.* (2015) demonstrated the existence of varying degrees of involvement. Prestridge (2019) expanded on this concept by proposing a four-tiered model categorizing teachers as info-consumer, info-networker, self-seeking contributor and vocationalist. On a parallel trajectory, Baker-Doyle (2021) tracks a teacher’s professional evolution from the teacher as a technician, working in isolation (Lortie, 1975), to the emergent, seeking advice as needed, to the participative, offering guidance to colleagues. Finally, the transformative teacher emerges as a leader, not only supporting colleagues within their institution but also collaborating with professionals across networks on shared projects. These approaches help us understand the diverse levels of teacher engagement in SNs while also offering a more comprehensive perspective on the social dynamics among teachers within these spaces.

This current trend of investigating what levels of involvement teachers have in SNs raises the need to explore the extent to which teachers engage in these spaces during their different stages of professionalization. We know that SNs are being used by teachers for their professional development and there are studies that have previously analyzed the uses and motivations of teachers to use SNs at different moments of the teaching career: in training (Carpenter *et al.*, 2023; Szeto *et al.*, 2015; Torphy and Drake, 2019), at the beginning of their career (Helleve *et al.*, 2020; März and Kelchtermans, 2020; Smith Risser, 2013; Staudt Willet, 2023; Zhukova, 2018) and in a consolidated position with years of experience (Marcelo-Martínez and Mosquera Gende, 2023; Trust *et al.*, 2016). However, the literature is scarce when addressing the motivation that moves teachers to get involved in social, exchange and interaction processes, considering the three stages of the teaching career. Therefore, in this research, we aim to explore the practices and motivations that teachers

possess at various stages of their teaching careers for using SNS for professional purposes. The question addressed in this study is:

- Q1. What is the use and the motives for why preservice teachers, beginning teachers and experienced teachers use social networks for their professional development?

Method

A mixed methods analysis has been developed that seeks to investigate the reasons why student teachers, beginners and experienced teachers use SNS for their learning and professional development. The teachers have been differentiated according to the stage of their professional career (preservice, beginning and experienced teachers). An explanatory sequential strategy was followed (Creswell, 2003), according to which an intensive phase of qualitative work followed an extensive phase of quantitative survey-type study of a descriptive and inferential nature. The choice of a mixed methods data collection system is justified by its ability to capture a broader and deeper range of data. On the one hand, questionnaires allow quantitative data to be collected from a large sample efficiently, facilitating statistical analysis of results. On the other hand, interviews provide a qualitative dimension to the study, allowing perceptions, experiences and motivations of the participants to be explored in depth, which enriches the understanding of the phenomenon investigated. In the data analysis phase, the results obtained through the questionnaires and interviews are combined. This mixed approach has proven particularly effective in social and behavioral studies, where the combination of quantitative and qualitative data leads to a more complete understanding of the topics investigated (Bryman, 2006; Harris *et al.*, 2010).

Participants

There were three samples of participants: preservice teachers, beginning teachers (less than five years of teaching experience) and experienced teachers (more than five years of teaching experience). There were 217 preservice teachers. Of those, 77.4% were women and 22.6% were men. The average age was 25.65 years old. Their ages ranged from 18 to 57 years old. All the student teacher participants belong to universities from different provinces of Spain. Most of the interviewees were studying initial teacher education programs (63.73%), while 36.27% were studying a master's degree. The areas of specialization of the preservice teachers were very diverse. A total of 30.66% of participants were in their first year of study, 22.63% in their second year, 21.17% in third year and 25.55% in their fourth year.

A total of 68 beginning teachers, defined as those with no more than five years of experience (Henry *et al.*, 2011; Thomas *et al.*, 2019), participated in the study. Of these, 79.4% were female and 20.6% male, with an average age of 33. The majority (88.2%) worked in public schools, followed by 7.4% in subsidized¹ and 4.4% in private schools. Regarding the educational levels they taught, 41.2% worked in Compulsory Secondary Education, 26.5% in Primary Education, with smaller numbers in Vocational Training (10.3%), Early Childhood Education (8.8%) and Baccalaureate (2.9%).

The sample includes 384 experienced teachers, 68% of whom are women and 32% are men, defined as having at least five years of experience, although most have over 20 years. Their average age is 47. In terms of employment, 78.4% work in public schools, 14.8% in subsidized schools and 6.5% in private schools. Their teaching primarily occurs in Primary Education (32.5%), Compulsory Secondary Education (29.1%), with smaller numbers in Baccalaureate (19.4%), Early Childhood Education (7%) and Vocational Training (8.1%).

Regarding years of teaching experience, 44.3% have been teaching for more than 22 years, 22.4% for 16–20 years, 18% for 11–15 years and 15.4% for 6–10 years.

For the qualitative analysis, interviews were conducted with 15 teachers, comprising 14 women and 1 man: five preservice, five beginning and five experienced teachers. These participants had previously completed a questionnaire about their reasons for using SNs in education, appropriate to their career stage. The questionnaire included an item to gauge their willingness for an interview. Out of 74 teachers initially available, only 15 were ultimately interviewed. Selection criteria ensured these participants were active on various SNs like X/Twitter, Instagram or Facebook, as confirmed by their response to a questionnaire item indicating daily activity on one or more of the SNs under study.

The study includes five preservice teachers with varied academic goals: two pursuing master's degrees, one a doctorate, one a degree in Primary Education and one preparing for competitive state exams. The five beginning teachers comprise two university professors, two primary school teachers and one teaching at both primary and secondary levels. In addition, five experienced teachers were interviewed, covering various educational levels: two in compulsory education and three in postcompulsory education, including one in primary education, one in secondary education, one in university education and two in official language schools.

Information collection instruments

Two digitalized questionnaires were used to collect information, one for preservice teachers and the other for in-service teachers [1] (beginning and experienced teachers) which were expressly drafted and psychometrically validated by means of principal component analysis and exploratory and confirmatory factor analysis (CFA) with JASP software version 0.11.1.0. The questionnaires started with a series of demographic questions to facilitate the collection of information about the participants (sex and age, among others) and about the use they make of SNs (networks they use, frequency of use, how long they have used them for, its reasons, how they started, the most notable users who contribute to their learning and the prominent profiles they follow). In the in-service teachers' questionnaire, among these questions, one item asked teachers to indicate how many years they have been teaching, which allowed us to segregate those who have been teaching for less than five years (beginner teachers) and more than five years (experienced teachers).

Finally, a Likert-type scale was available, different for each instrument, with which we approached the reasons for the use of the SNs by in-service teachers and student teachers. The majority of the items retained comparable significance; however, adjustments were made to the wording to align with the teaching context and the academic profiles of the educators. The scale for preservice teachers had 33 items and the one for in-service teachers had 24. The difference was that the first scale included, in addition to the common items to the second scale, items referring to specific particularities of the academic field in which the preservice teachers are located and related to the use that they make, as students, of SNs in the academic context and items addressing the utilization of SNs by students teachers as part of class-directed activities and projects.

For the ad hoc design of the scales, we based it on [Staudt Willet \(2019\)](#), [Nochumson \(2018, 2020\)](#) and [Higueras-Rodríguez et al. \(2020\)](#) who inquire about the reasons why teachers use the social network X/Twitter. The works of [Gilbert \(2016\)](#), [Greenhow and Askari \(2017\)](#) and [Li et al. \(2021\)](#) in which they analyzed teachers' learning processes through SNs were also considered for the scale design. On both questionnaires, participants were asked to rate the extent to which participation in SNs has provided them with what is expressed in each item on a Likert-type scale with five values from "Not at all" (1) to "Very much" (5).

The scale for preservice teachers had 33 items. The Kaiser–Meyer–Olkin (KMO) sampling adequacy index exceeded the recommended value of 0.6, specifically 0.939. In Bartlett’s sphericity test, the critical level (Sig.) facilitated factor analysis (0.000). General scale Cronbach’s alpha was 0.959 and McDonald’s omega (ω) was 0.957. If any of the items were deleted, the values decreased. In no case was the total correlation of corrected items less than 0.3. The exploratory factor analysis with promax rotation extracted a three-factor model, with a Chi-square distribution of < 0.001 . The factors were coincident with the latent components resulting from principal component analysis (PCA). [Tabachnick and Fidell \(2007\)](#) claim that the PCA “is useful as an initial step where it reveals a lot about the maximum number and nature of factors” (p. 640). Item loadings were always greater than 0.3. (see [Table A1 in Appendix](#)). The model was confirmed by confirmatory factor analysis (CFA). According to the p -value of the Chi-square test, the model fitted (< 0.001). The additional adjustment measures, Tucker–Lewis Index (0.927), RMSEA 90% CI lower bound (0.049) and GFI (0.927) were good, according to [Hair et al. \(2010\)](#). The Cronbach’s alpha of each factor was: 0.931, 0.910 and 0.914. The McDonald’s omega was: 0.929, 0.911 and 0.914.

The scale for in-service teachers (beginning and experienced teachers) was composed of 24 items that were organized into two factors according to the model defined and confirmed by the analyses. The validity and reliability were analyzed in the same way. To check the suitability of the scale for the analyses to which it was subjected, the KMO and Bartlett’s sphericity tests were extracted. In the first case, the overall (MSA = 0.964) and per item values were above 0.9 so the data set was suitable for reduction. In the second, the p -value was < 0.001 confirming its suitability. The correlation of each item with the remaining items was above 0.3 in all cases. The exploratory factor analysis (with varimax rotation) generated a two-factor model, with a chi-square distribution of p -value < 0.001 . The principal component analysis (with equal rotation) reduced the set of items to two components, coincident with the factors. The model resulting from the exploration was confirmed by CFA. The p -value of the chi-squared distribution remained < 0.001 . The goodness-of-fit of the model is reflected in the root mean square error of approximation per degree of freedom (RMSEA = 0.049) < 0.05 and the goodness-of-fit index (GFI = 0.912) ≥ 0.9 . The reliability of the scale was high with a Cronbach’s coefficient (0.962) and McDonald’s ω (0.962) of above 0.9. None of the items, if deleted, increased the value of the coefficients (see [Table A2 in Appendix](#)). The Cronbach’s alpha of each factor was: 0.938 and 0.942. The McDonald’s omega was 0.939 and 0.943, respectively.

The collection of quantitative data through questionnaires gave way to the collection of qualitative data through 15 interviews with preservice, beginning and experienced teachers, with the purpose of providing greater depth in the results obtained and being able to complement the data obtained through the questionnaires. The semi-structured interviews were conducted through the Zoom platform, providing the question script before the interviews. The interviewers had a question script composed of 10 questions organized into three dimensions: personal learning, social learning and transfer of learning. The first dimension concerns the individual aspects of participation in SNs and of the teachers’ personal learning, taking into consideration what use they make of SNs and what their motives are for using them for professional development. The second dimension addresses social learning and deals with the use of SNs to interact with others. Finally, the third dimension, related to the transfer of learning, brings us closer to the discovery of whether teachers have been able to apply what they have learned through SNs in their teaching ([Turner et al., 2018](#)).

Data analysis

To validate the scales of the questionnaires, exploratory factor analysis, component analysis and CFA were applied with JASP software. Once validity and reliability were analyzed, quantitative data were subjected to descriptive statistical analysis and factorial analysis of variance (ANOVA). We opted for a factorial ANOVA because we were interested in analyzing the effect of two independent variables (sex and years) on each item (dependent variable). In the case of the preservice teachers, the independent variables were sex and age. Years for student teachers is referred to the natural age (with four brackets: 20 years old or younger, 21–25 years old, 26–30 years old and 31 years old and above). Our goal was to analyze intragroup differences to describe in maximum detail the reasons why SNs are used by teachers. For beginning and experienced teachers, the independent variables were sex and years of experience (with five brackets: 5 or fewer years of teaching experience, 6–10 years, 11–15 years, 16–20 years and more than 20 years). Thus, we analyzed the differences between beginners and experienced teachers. Levene's test previously tested for homoscedasticity or equality of variances (sig. >0.05). As there were significant mean differences at the 0.05 level (*H1*), and as the independent variable was not dichotomous, a two-by-two analysis (post hoc) was performed and the Tukey and Scheffe tests were applied. Factors organize and give coherence to quantitative data. The analyses have been carried out by items of each factor so as not to lose the level of detail they provide and the opportunities for clarification and deepening with the qualitative data. For the data analysis, the IBM SPSS v.29 program was used.

Once the interviews were carried out, the data was transcribed from audio to text. To develop a coding tool for analyzing teachers' learning objectives, we created a list of labels derived from open coding of interview transcripts (Miles and Huberman, 1994). For the content analysis, a system of categories with three dimensions was created by induction: personal learning, social learning and transfer of learning. It began with interviews of in-service teachers and the resulting category system consisted of nine categories and 21 labels. To these was added one more label identified from the interviews of the preservice teachers. The categorization and data coding was carried out independently by two evaluators using MAXQDA software version 2022. The reliability of the instrument was previously verified by applying Cohen's Kappa Coefficient using the SPSS program. The consistency of the 22-label instrument reached an index of 0.806 which, according to Landis and Koch's (1977) classification, is considered a substantial concordance rate. The assignment of codes to all the interviews generated 489 items that made the subsequent analysis possible.

Results

The results obtained from the collection and analysis of information are presented in a combined form, using quantitative data together with the data from the qualitative interviews.

What social networks do preservice teachers use for their professional development, and for what motivations?

We found that SNs are being used by preservice teachers for different reasons. The SNs most used are YouTube (41%) and Instagram (52,5%). The least common SNs used among these teachers are X/Twitter (38.5% never) and Facebook (52.5% never). This is evidenced in the interviews. Among the preservice teachers the most prominent network is Instagram: "The one I mainly use is Instagram" (Int. F5).

The motives for the use of SNs by preservice teachers can be organized into three factors. The analysis outlines three factors in teachers' use of SNs: *Professional Learning and Teacher Collaboration* (PC1) emphasizes collaborative interactions among teachers to build a professional learning community; *Academic Learning* (PC2) involves preservice teachers using SNs for academic collaboration, feedback and building educational networks under the guidance of teacher trainers; *Connection and Mutual Support* (PC3) highlights SNs' role in fostering connections, support and overcoming isolation among educators.

Regarding the motivations behind teachers' use of SNs, we first focus on the set of reasons that refer to professional learning and teacher collaboration. The preservice teachers mainly use SNs to find educational resources shared by other teachers (60.8% agree or strongly agree), which they confirm by stating that they carry out storage and classification activities: "I save a lot of games from accounts that are from secondary school teachers, physical education teachers" (Int. F3). However, in addition to finding educational resources, SNs are useful for preservice teachers to learn about subjects in which they are less proficient, "in subjects that you don't know so much about that might interest you and when they have come up, they have interested you" (Int. F5) or to reflect on their previous experiences "and make me rethink what I thought was right or wrong, if it went well, if it went badly" (Int. F3). Preservice teachers do not report using networks to share with other materials or resources that they have designed themselves (51.9% never or almost never). In this sense, the interviews also revealed less active participation by preservice teachers, receiving more than sharing or contributing: "I'm not a content creator, I'm a consumer, I admit it" (Int. F1).

Together with the option of sharing and learning, student teachers are motivated to use SNs for academic purposes, mainly for the preparation of an exam or class project (44.2%) or for interaction in some activity organized by their teachers (36.7%). To a lesser extent, the preservice teachers consider that SNs provide them with a safe place where they can ask their questions and doubts as a future teacher (9,3%), collaborate in shared projects (9,9%) and receive immediate feedback (9,8%).

The third set of motives represents the motivation of preservice teachers to use SNs in reference to the role they play on a more personal, emotional and sense of belonging level. The motives that present the highest degree of agreement and average value on the part of preservice teachers are the following: "To overcome the isolation that I often feel among my peers" (42.9%), "Know that other students have the same problems as me" (41.9%) and "Participate in a space that I consider to be open and positive" (40.1%). SNs allow preservice teachers to establish their own personal social network, finding other teachers or students with similar worries to theirs with whom they can share opinions and knowledge on current educational topics. According to the interviews, the profiles and accounts most followed by preservice teachers are related to their studies, in line with the search for materials and resources for their day-to-day work, as shown above. Teachers also emphasize the importance of the emotional component of relationships: "It had a big impact on me, because I felt part of something much bigger, geographically speaking, and I understand that it's a virtual network, right?" (Int. F1).

The study explored if preservice teachers' reasons for using SNs vary by age and gender, categorizing them into four age groups: under 20 (1), 21–25 (2), 26–30 (3) and 31 and above (4). Findings suggest age-related differences in valuing SNs for professional and academic development, with younger teachers recognizing their benefits more. For instance, 25% of those under 20 strongly agree with interacting through teacher-organized activities (item 22), compared to just 9.5% of those 31 and older. Younger preservice teachers also place higher value on creating networks of like-minded people (item 28) and having a safe space

for questions (item 30). However, motives for seeking collaboration and feedback do not significantly differ across age groups, and no motivational differences were observed based on gender (see [Table A3 in Appendix](#)).

We find differences in relation to age (sig. 030) and sex (sig. 005) in the highest-rated motive of the total, specifically between groups of preservice teachers aged 21–25 (2) and those who are 31 or older (4) in the reason for “find educational resources shared by other teachers” (item 2). There are also significant differences in the perception of these other motives: “Get to know teachers who share materials and interesting content for my training” (item 1), “Know the opinions of other teachers on current educational topics” (item 5), “Learn from the materials created by other teachers” (item 13) and “Participate in open-access and online seminars and training activities” (item 14) (see [Table A4 in Appendix](#)). Interviews have also detected this trend linking SNs to face-to-face training opportunities: “I’ve even gone to maybe some kind of talk where at the end of the presentation they give you the username of their different networks so you can look them up or follow them if you’re interested” (Interviewed F4, hereinafter Int.). Regarding sex, we find a trend in women to value more positively the importance of SNs than we see among men. For example, regarding participation in open-access and online seminars and training activities, 33.3% of women strongly agree, compared to 18.4% of men. For the most part, the motives for connection and mutual support are affected by age. Similarly, there are differences between the youngest and the oldest (see [Table A5 in Appendix](#)).

Which social networks do in-service teachers (beginning and experienced) use for their professional development, and for what motivations?

In-service teachers will be differentiated into beginners and experienced in the following. The motives for their use of SNs were grouped into two factors. The first factor, *Share and Learn*, refers to the motivation which moves teachers in SNs to find and implement digital resources, learning programs, or activities shared by other teachers in their classes. The second factor, *Support and Belonging*, groups together the largest number of motives and refers to the use of SNs for integration in an “affinity space” (Gee, 2005), where they interact with other teachers who are willing to share their emotions and concerns, offer accompaniment, answer questions and help in the implementation of innovation.

Which social networks are used by beginning teachers, and with what motivations related to their professional development? Beginning teachers mainly use Instagram and Facebook as SNs of reference. Facebook is used consistently by 23.9% of beginning teachers and sometimes by 26.9%, while Instagram is used regularly by 43.3% and sometimes by 11.9%. X/Twitter is one of the least used SNs (39.7%). This is corroborated in the interviews: “I only use Facebook and I use it for educational purposes” (Int. P3); “Instagram for learning” (Int. P4).

The most common reason for beginning teachers to use SNs is to find educational resources shared by other colleagues (item 2). A total of 76.1% of beginning teachers agree or strongly agree with this motive. The reasons “Participate in open-access and online seminars and training activities” (item 15) and “Detect my own training needs or deficiencies” (item 17) are the ones that motivate the beginning teachers the least. Beginning teachers mirror preservice teachers in their SNs usage motives, primarily seeking materials and content tailored to their subjects or educational stages for daily teaching needs: “I tend to look more at materials created for the level at which I teach, Primary, and the particular subject, English” (Int. P3) and experiencing a sense of not yet possessing sufficient knowledge to contribute: “I didn’t feel like I had the authority to be able to create materials or share them” (Int. P3).

Beginning teachers place less value on receiving support from others or feeling a sense of belonging to a group. Only 16.4% of these teachers agree or strongly agree that SNs allow them to overcome the isolation that often occurs (item 10) and only 15% of beginners are moved by the opportunity to share their own emotions and concerns (item 9). In the interviews, there were some references to the role of SNs as a support factor for the teachers: "Forming part of a learning community" (Int. P3). Although beginning teachers tend to take a less active role in SNs, in some of the interviews we see a tendency to participate and interact, although these contributions are done in a timid way: "When they do some activity that I find interesting, I can ask them where I can get more information, comment or even give them my opinion" (Int. P1). They even start to think of sharing their own experiences: "I do plan at some point to be able to share my opinion" (Int. P1). However, beginning teachers do not value sharing their own resources (74.6%) or raising doubts or questions to the community (77.6%) as a reason for using SNs.

Which social networks are used by experienced teachers, and with what motivations related to their professional development? The most SNs used by experienced teachers are Facebook (58.6%) and Instagram (52.9%). This is followed by X/Twitter, used by 23.1% continuously, but contrasting with 28.5% who never use it. Some of the interviewees report how they have moved from one network to another in a natural way: "Although I used Instagram at one point, I now focus more on Twitter" (Int. E3).

Experienced teachers are primarily motivated by finding educational resources shared by their colleagues in the context of sharing and learning (75.5%). However, they are not only motivated by searching for resources, but also by learning from the materials produced by other peers (65.4%) in which they are less proficient (58.9%). This learning can later be transferred to their teaching practice, given that they say they incorporate new ideas or methods that they have learned in SNs (55.8%) or new digital resources and tools (61.7%) into their teaching. It is logical to think that from this learning acquired in SNs, there is a subsequent reflection on their teaching practices and their teaching (54.9%), a latent aspect in the interviews with experienced teachers:

Both in the teaching approach, as well as in the content, and the insight that educational research can provide, you realize that there were things you thought you were doing well, but you weren't (Int. E3).

As teachers gain more years of experience, they become more open to occupying a social space to share materials and resources as well as concerns. Thus, in interviews with experienced teachers, networks stand out as a source of collaborations and synergies, beyond resources for a class or subject: "We are now involved in a collaboration project with other language schools throughout the country, partner schools and various collaboration projects between teachers" (Int. E5). Experienced teachers are already presented as more active profiles with a high degree of interaction: "You respond to tweets, or you retweet or quote something and they also respond. There is a very fluid contact and communication, and it also happens on the spot" (Int. E4).

The reasons "Participate in open-access and online seminars and training activities" and "Detect my own training needs or deficiencies" are the ones that motivate the experienced teachers the least. Similarly, the motives of support and belonging are less valued than the previous ones, to the point that only 10.1% of experienced teachers agree or strongly agree that SNs allow them to overcome the isolation that often occurs (item 10) or that 19.4% are moved by the opportunity to share their own emotions and concerns (item 9). In general, experienced teachers do not turn to the networks to request support from other teachers to solve a problem, only 16.5%.

However, in the interviews, SNS continue to stand out as a place of support for the most experienced teachers:

Sometimes the encouragement it gives you to see that other people have the same problems, that no matter how good the teachers are, they have the same problems with the students as I do, in my center, on a daily basis (Int. E2).

The in-service teachers in this study have been differentiated into five groups according to their years of experience in order to delve into the possible intragroup differences, the first corresponding to beginning teachers and the others to experienced ones. According to years of experience, there are differences in the items “Sharing my own resources with other teachers” (sig. 0.033) and “Raising doubts or questions to the community” (sig. 0.047). In particular, it’s observed that among teachers with 11–15 years of experience, there is a higher percentage of them who completely agree than among teachers with five or fewer years of experience. See [Table A6](#) in [Appendix](#).

The motives for sharing and learning differ by gender, with fewer women feeling underrepresented and more fully identified. For instance, on item 5 (“Get examples of programs or activities to use in my class”), 31.2% of men strongly disagree, compared to 21.6% of women. Differences also emerge among experienced teachers: those with 11–15 years and those with 16–20 years of experience diverge in their views on item 6 (“Know the opinions of other teachers on current issues”) and item 7 (“Ask for support from a teacher to solve a problem”). Furthermore, teachers with 6–10 years and 11–15 years of experience show variations in seeking assistance for implementing resources or teaching strategies. Refer to [Table A6](#) in [Appendix](#) for details.

Conclusions and discussion

The combined research and factorial analysis highlight how teachers, at different stages of their career (preservice, beginning and experienced), engage with SNS for various motivations and with different degrees of appreciation. In the following [Table 1](#), we summarize the main aspects that serve to establish comparisons among the three groups analyzed in this research: preservice, beginning and in-service teachers.

As society digitizes, there’s a growing consensus on the need for a broader view of teachers’ professional development. Research in areas such as “teacher learning,” “teacher professional development” and “teacher change” ([Gitomer and Bell, 2016](#); [Martin and Polly, 2017](#)) has enhanced our understanding of teachers’ learning processes, professional identity formation, expertise development and practice changes. This body of work shows that SNS are integral to teachers’ development and learning across all career stages.

SNS are providing teachers with a space in which they can develop and exchange professional capital ([Hargreaves and Fullan, 2015](#)) and social capital ([Fox and Wilson, 2015](#)), allowing for professional growth, mutual support and the exchange of knowledge and experiences. When we delve into the motives that move teachers in their different professional stages, we find that there are elements that remain from the preservice stage to the consolidation of experience. The use of SNS has been identified as a means to obtain resources and materials ([Goodyear et al., 2019](#); [Marcelo-Martínez et al., 2024](#)), as well as to find other teachers with whom to learn, discuss, raise doubts or to consult on anything, given their experience. These two aspects are closely related to one of the main concerns generated in the professional life of teachers at any point in their careers, that of constantly nurturing their content knowledge ([Feiman-Nemser, 2001](#)).

The engagement of teachers in SNS (SNS) grows with their professional development, revealing varied motivations based on their career stage. As we have seen in the results of

Reasons for using SN	Preservice teachers	Beginning teachers	Experienced teachers
Search and find	Access to networks to find materials and resources to apply to their academic projects and/or exams is highly valued. They also highlight learning from them	The most valued reason is to find materials to apply to their classes that are based on their subjects and curricular areas	They access networks to find materials to learn from and incorporate into their practice
Create and share	The motivations to create your own content and/or share with the community are not valued. They access networks passively to consume	They begin to think about sharing their content, but they do not value it as something relevant	They value more positively generating their own content and sharing it with other teachers
Participate in a community	Belonging to a community or generating a feeling of belonging is not valued as essential	In the scale of reasons they do not value feeling part of a community very much, but in the interviews they value being part of a learning community	They positively value the possibility of establishing collaborative actions with other teachers. They are confirmed in the interviews
Reflect	They value the usefulness of networks to see other ways of teaching and reflect on their future as teachers	They do not highlight using networks to reflect on their teaching practice as something valued	Incorporating new materials and/or methodologies makes them question their previous practices and reflect on them
Emotional support	Half positively value the use of networks to meet other teachers with the same problems, or overcome the isolation they may feel in their academic contexts	The reason with which fewer teachers agree or strongly agree is that social networks allow them to overcome the isolation that often occurs	They do not value that networks serve as a means of emotional support, but in the interviews the ability to have people in networks to rely on stands out

Table 1.
Synthesis of reasons for using social networks by preservice, beginner and experienced teachers

Source: Table by authors

the study, preservice teachers prioritize SNs for academic learning and resource discovery, focusing on enhancing their content knowledge (Feiman-Nemser, 2001) and acquiring teaching strategies, activities and resources from more seasoned educators. This focus reflects a particular interest in how SNs can support their initial training and education programs. Despite this, Spanish preservice teachers shows a motivation to engage in SNs with a limited intention for social interaction, collaboration or connection with other teachers or students, partly because they do not see SNs as platforms for obtaining support or engaging in discussions with their teachers (Faure-Carvalho *et al.*, 2023). Their reticence is also due to a lack of confidence and a perceived lack of valuable contributions to the network, related to their nascent understanding of their pedagogical area. Consequently,

they tend to adopt the role of observers rather than active participants in these digital communities (Baker-Doyle, 2021; Prestridge, 2019; Ryberg and Christiansen, 2008), showing little interest in creating their own content or engaging in online communities.

On the other hand, the Spanish beginning teachers analyzed in this study significantly use SNs to search for materials that are beneficial for their daily teaching activities. Furthermore, they gradually begin to recognize the importance of sharing their content and engaging within communities, although they have not yet deemed it crucial. The transition from the training phase to the practical application in classrooms brings about a reality shock, marked by uncertainty and a stark contrast to the expectations set during their education (Marcelo *et al.*, 2018; Orland-Barak, 2014). This shift necessitates that beginning teachers not only continue to enhance their pedagogical and content knowledge through these networks but also start to build a supportive network of interaction with fellow educators. As they navigate the challenges of their early teaching experiences, they are prompted to adopt a more participatory stance in SNs, driven by the need for assistance and support as they move away from the academic environment and into the practical realities of teaching.

The experienced Spanish teachers who participated in our study increasingly value generating, sharing content, and collaborating through SNs, reflecting a shift in perceiving these platforms as crucial for professional and personal growth. This evolution, influenced by experience, leads to a confident and strategic use of SNs for resource acquisition and application in teaching. Their focus shifts toward innovation and collaboration, as noted by Lieberman and Miller (2011) and Pounder (2006), emphasizing connections with peers and active participation in professional communities. This approach, which aligns with transformative teaching principles highlighted by Baker-Doyle (2021), showcases a more profound engagement with SNs, moving from learning to leading within their professional networks.

Our research illustrates a shift in Spanish teachers' engagement from passive observation to active contribution, a change that becomes more pronounced with experience. Initially, preservice teachers tend to use SNs for observation, feeling they have limited contributions due to their inexperience (Baker-Doyle, 2021). Over time, as they gain experience, they start to generate and share their own educational content, moving toward a "teacherpreneurs" role (Shelton and Archambault, 2019). This transition not only redefines their professional identity by merging teaching with entrepreneurship but also encourages a culture of innovation and collaboration. Consequently, this evolution benefits the educational community by enhancing the quality and diversity of available resources.

Otherwise, there is a tendency to value less the usefulness of SNs to provide emotional support as teachers gain experience. Although the literature has recently highlighted the use of SNs to overcome the isolation that preservice and beginning teachers may feel in their first teaching experiences (Carpenter *et al.*, 2023), Spanish teachers do not value this reason as a valuable element in their use of SNs. However, the importance of finding in networks people who offer support and trust is highlighted. The findings suggest a progression in how teachers perceive and use SNs throughout their career, underscoring the importance of these platforms for continuous professional development and for building learning communities. Overall, both preservice and in-service teachers turn to SNs primarily for the exchange of ideas, resources and projects, and for social interaction, seeking companionship and support.

The findings of this study suggest the need to work on different lines of action. First, it is important to work with preservice teachers so that they discover the opportunities that SNs can provide for their formal learning, but also for establishing connections and social

interactions with other professionals that they will then maintain during their professional practice. This is specifically important in the field of higher education since preservice teachers find little reason to use SNs in the academic setting. In this regard, it would be necessary to develop training programs aimed at teacher educators to integrate the use of SNs into their training practices (Forkosh-Baruch and Avidov-Ungar, 2019).

Regarding beginning teachers, the use of SNs as academic and personal support is limited. In this sense, it would be advisable to offer mentorship support in the induction processes, which expands the possibilities for accompaniment (Orland-Barak and Yinon, 2005). But we have also found beginning teachers who are active on SNs, it is important to encourage them to begin to serve as informal leaders or mentors within the school, transferring the opportunities for professional development that exist in SNs to the local context. In addition, efforts should be made to show their benefits and incorporate them into the teaching-learning processes to promote their use as a potential tool for continuous professional development. Thus, we have seen that it is the experienced teachers who are more motivated to establish a sense of collaboration and leadership in SNs. It will be necessary to analyze these figures as agents of educational change that make it possible to transfer the learning acquired in SNs to the school.

This study has some limitations. Since the study has focused on Spanish teachers, it would be interesting to be able to compare the results with other social contexts in which continuous training is developed through different routes and channels, to weigh the extent to which the conclusions obtained can be extrapolated (Escudero-Muñoz, 2017; Guarro *et al.*, 2017). Apart from that, although we know that many teachers use SNs for their learning and professional development, we also know that there are still teachers who do not trust SNs for developing their continuous learning. It is necessary to investigate the reasons why these teachers do not make use of connected environments for their professional development and how to attract them to these learning and professional enrichment spaces.

Note

1. For preservice-teachers <https://forms.gle/czurwTXoE4xECyKj9> and in-service teachers <https://forms.gle/L7LP9nPsuKKdp7b78>

References

- Atwal, K. (2013), "Theories of workplace learning in relation to teacher professional learning in UK primary schools", *Research in Teacher Education*, Vol. 3 No. 2, pp. 22-27, doi: [10.15123/uel.85w1x](https://doi.org/10.15123/uel.85w1x).
- Baker-Doyle, K. (2021), *Transformative Teachers: Teacher Leadership and Learning in a Connected World*, Harvard Education Press, Cambridge, MA.
- Bereiter, C. and Scardamalia, M. (1986), "Educational relevance of the study of expertise", *Interchange*, Vol. 17 No. 2, pp. 10-19, doi: [10.1007/BF01807464](https://doi.org/10.1007/BF01807464).
- Britt, V.G. and Paulus, T. (2016), "'Beyond the four walls of my building': a case study of #Edchat as a community of practice", *American Journal of Distance Education*, Vol. 30 No. 1, pp. 48-59, doi: [10.1080/08923647.2016.1119609](https://doi.org/10.1080/08923647.2016.1119609).
- Bryman, A. (2006), "Integrating quantitative and qualitative research: how is it done?", *Qualitative Research*, Vol. 6, No. 1, pp. 97-113, doi: [10.1177/1468794106058877](https://doi.org/10.1177/1468794106058877).
- Carpenter, J.P. and Krutka, D.G. (2014), "How and why educators use Twitter: a survey of the field", *Journal of Research on Technology in Education*, Vol. 46 No. 4, pp. 414-434, doi: [10.1080/15391523.2014.925701](https://doi.org/10.1080/15391523.2014.925701).

- Carpenter, J.P., Morrison, S.A., Craft, M. and Lee, M. (2020), "How and why are educators using Instagram?", *Teaching and Teacher Education*, Vol. 96, p. 103149, doi: [10.1016/j.tate.2020.103149](https://doi.org/10.1016/j.tate.2020.103149).
- Carpenter, J.P., Morrison, S.A., Rosenberg, J.M. and Hawthorne, K.A. (2023), "Using social media in pre-service teacher education: the case of a program-wide Twitter hashtag", *Teaching and Teacher Education*, Vol. 124, p. 104036, doi: [10.1016/j.tate.2023.104036](https://doi.org/10.1016/j.tate.2023.104036).
- Carpenter, J.P., Rosenberg, J.M., Kessler, A., Romero-Hall, E. and Fischer, C. (2024a), "The importance of context in teacher educators' professional digital competence". *Teachers and Teaching*, pp. 1-17, doi: [10.1080/13540602.2024.2320155](https://doi.org/10.1080/13540602.2024.2320155).
- Carpenter, J.P., Morrison, S.A., Shelton, C.C., Clark, N., Patel, S. and Toma-Harrold, D. (2024b), "How and why educators use TikTok: come for the fun, stay for the learning?". *Teaching and Teacher Education*, Vol. 142, p. 104530, doi: [10.1016/j.tate.2024.104530](https://doi.org/10.1016/j.tate.2024.104530).
- Creswell, J.W. (2003), *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches*, Sage, London.
- Darling-Hammond, L., Hyler, M.E. and Gardner, M. (2017), *Effective Teacher Professional Development*, Learning Policy Institute, Palo Alto, CA.
- Darling-Hammons, L. and Bransford, J. (2005), *Preparing Teachers for a Changing World: What Teachers Should Learn and Be Able to Do*, in Darling-Hammons, L. and Bransford, J. (Eds), John Wiley & Sons, San Francisco, CA.
- Day, C., Sammons, P. and Stobart, G. (2007). *Teachers Matter: Connecting work, lives and effectiveness*, McGraw-Hill Education.
- Escudero-Muñoz, J.M. (2017), "La formación continua del profesorado de la educación obligatoria en el contexto español", *Profesorado. Revista de Curriculum y Formación de Profesorado*, Vol. 21 No. 3, pp. 1-20, available at: <https://recyt.fecyt.es/index.php/profesorado/article/view/59785>
- Faure-Carvalho, A., Nieto-Fernández, S., Villalba-Palacin, V. and Gustems-Carnicer, J. (2023), "Redes sociales y Educación Superior en la era COVID-19", *Education in the Knowledge Society (EKS)*, Vol. 24, p. e29929, doi: [10.14201/eks.29929](https://doi.org/10.14201/eks.29929).
- Feiman-Nemser, S. (2001), "From preparation to practice: designing a continuum to strengthen and sustain teaching", *Teachers College Record: The Voice of Scholarship in Education*, Vol. 103 No. 6, pp. 1013-1055, doi: [10.1111/0161-4681.00141](https://doi.org/10.1111/0161-4681.00141).
- Forkosh-Baruch, A. and Avidov-Ungar, O. (2019), "ICT implementation in colleges of education: a framework for teacher educators", *Journal of Information Technology Education: Research*, Vol. 18, pp. 207-229, doi: [10.28945/4312](https://doi.org/10.28945/4312).
- Fox, A.R.C. and Wilson, E.G. (2015), "Networking and the development of professionals: beginning teachers building social capital", *Teaching and Teacher Education*, Vol. 47, pp. 93-107, doi: [10.1016/j.tate.2014.12.004](https://doi.org/10.1016/j.tate.2014.12.004).
- Gee, J.P. (2005), "Semiotic social spaces and affinity spaces: from the age of mythology to today's schools", *Beyond Communities of Practice*, Cambridge University Press, Cambridge, pp. 214-232, doi: [10.1017/CBO9780511610554.012](https://doi.org/10.1017/CBO9780511610554.012).
- Gilbert, S. (2016), "Learning in a Twitter-based community of practice: an exploration of knowledge exchange as a motivation for participation in #hcsma", *Information, Communication & Society*, Vol. 19 No. 9, pp. 1214-1232, doi: [10.1080/1369118X.2016.1186715](https://doi.org/10.1080/1369118X.2016.1186715).
- Gitomer, D.H. and Bell, C.A. (2016), *Handbook of Research on Teaching*, AERA, Washington.
- Goodyear, V.A., Parker, M. and Casey, A. (2019), "Social media and teacher professional learning communities", *Physical Education and Sport Pedagogy*, Vol. 24 No. 5, pp. 421-433, doi: [10.1080/17408989.2019.1617263](https://doi.org/10.1080/17408989.2019.1617263).
- Greenhalgh, S.P., Rosenberg, J.M., Staudt Willet, K.B., Koehler, M.J. and Akcaoglu, M. (2020), "Identifying multiple learning spaces within a single teacher-focused Twitter hashtag", *Computers & Education*, Vol. 148, p. 103809, doi: [10.1016/j.compedu.2020.103809](https://doi.org/10.1016/j.compedu.2020.103809).

-
- Greenhow, C. and Askari, E. (2017), "Learning and teaching with social network sites: a decade of research in K-12 related education", *Education and Information Technologies*, Vol. 22 No. 2, pp. 623-645, doi: [10.1007/s10639-015-9446-9](https://doi.org/10.1007/s10639-015-9446-9).
- Greenhow, C. and Chapman, A. (2020), "Social distancing meet social media: digital tools for connecting students, teachers, and citizens in an emergency", *Information and Learning Sciences*, Vol. 121 Nos 5/6, pp. 341-352, doi: [10.1108/ILS-04-2020-0134](https://doi.org/10.1108/ILS-04-2020-0134).
- Greenhow, C., Campbell, D., Galvin, S. and Askari, E. (2018), "Social media in teacher professional development: a literature review", in Langran, E. and Borup, J. (Eds), *Proceedings of Society for Information Technology & Teacher Education International Conference*, pp. 2256-2264, available at: www.learntechlib.org/primary/p/182975/
- Guarro, A., Martínez, B. and Portela-Pruaño, A. (2017), "Políticas de Formación Continuada del Profesorado: Análisis crítico del discurso oficial de Comunidades Autónomas", *Revista de Curriculum y Formación de Profesorado*, Vol. 21 No. 3, pp. 1-20, available at: <https://recyt.fecyt.es/index.php/profesorado/article/view/59786>
- Hair, J.F., Black, W.C., Babin, B.J. and Anderson, R.E. (2010). *Multivariate Data Analysis*, 7th ed., Pearson, New York, NY.
- Hargreaves, A. (1994), "Development and desire: a postmodern perspective", Annual Meeting of the American Educational Research Association.
- Hargreaves, A. and Fullan, M. (2015), *Professional Capital: Transforming Teaching in Every School*, Teachers College Press, Toronto.
- Harris, J., Brown, V.A. and Russell, J. (2010). *Tackling Wicked Problems: Through the Transdisciplinary Imagination*, Taylor & Francis, London.
- Hartung, C., Ann Hendry, N., Albury, K., Johnston, S. and Welch, R. (2023), "Teachers of TikTok: glimpses and gestures in the performance of professional identity", *Media International Australia*, Vol. 186 No. 1, pp. 81-96, doi: [10.1177/1329878X211068836](https://doi.org/10.1177/1329878X211068836).
- Haythornthwaite, C. (2019), "Learning, connectivity and networks", *Information and Learning Sciences*, Vol. 120 Nos 1/2, pp. 19-38, doi: [10.1108/ILS-06-2018-0052](https://doi.org/10.1108/ILS-06-2018-0052).
- Helleve, I., Grov Almås, A. and Bjørkelo, B. (2020), "Becoming a professional digital competent teacher". *Professional Development in Education*, Vol. 46 No. 2, pp. 324-336, doi: [10.1080/19415257.2019.1585381](https://doi.org/10.1080/19415257.2019.1585381).
- Henry, G.T., Bastian, K.C. and Fortner, C.K. (2011), "Stayers and leavers", *Educational Researcher*, Vol. 40 No. 6, pp. 271-280, doi: [10.3102/0013189X11419042](https://doi.org/10.3102/0013189X11419042).
- Higueras-Rodríguez, L., Medina-García, M. and Pegalajar-Palomino, M. D.C. (2020), "Use of twitter as an educational resource: analysis of concepts of active and trainee teachers", *Education Sciences*, Vol. 10 No. 8, p. 200, doi: [10.3390/educsci10080200](https://doi.org/10.3390/educsci10080200).
- Huberman, M. (1989), "The professional life cycle of teachers", *Teachers College Record: The Voice of Scholarship in Education*, Vol. 91 No. 1, pp. 31-57, doi: [10.1177/016146818909100107](https://doi.org/10.1177/016146818909100107).
- Jones, W.M. and Dexter, S. (2014), "How teachers learn: the roles of formal, informal, and independent learning", *Educational Technology Research and Development*, Vol. 62 No. 3, pp. 367-384, doi: [10.1007/s11423-014-9337-6](https://doi.org/10.1007/s11423-014-9337-6).
- Kennedy, M.M. (2019), "How we learn about teacher learning", *Review of Research in Education*, Vol. 43 No. 1, pp. 138-162, doi: [10.3102/0091732X19838970](https://doi.org/10.3102/0091732X19838970).
- Krutka, D.G. and Greenhalgh, S.P. (2023), "'You can tell a lot about a person by reading their bio': lessons from inauthentic Twitter accounts' activity in #Edchat", *Journal of Research on Technology in Education*, Vol. 55 No. 3, pp. 369-387, doi: [10.1080/15391523.2021.1962454](https://doi.org/10.1080/15391523.2021.1962454).
- Landis, J.R. and Koch, G.G. (1977), "The measurement of observer agreement for categorical data", *Biometrics*, Vol. 33 No. 1, pp. 159-174.
- Le Maistre, C. and Paré, A. (2010), "Whatever it takes: how beginning teachers learn to survive", *Teaching and Teacher Education*, Vol. 26 No. 3, pp. 559-564, doi: [10.1016/j.tate.2009.06.016](https://doi.org/10.1016/j.tate.2009.06.016).

- Li, S., Zheng, J. and Zheng, Y. (2021), "Towards a new approach to managing teacher online learning: learning communities as activity systems", *The Social Science Journal*, Vol. 58 No. 3, pp. 383-395, doi: [10.1016/j.soscij.2019.04.008](https://doi.org/10.1016/j.soscij.2019.04.008).
- Lieberman, A. and Miller, L. (2011). *Teacher Leadership*, Jossey-Bass, San Francisco, CA.
- Little, J.W. (1990), "The persistence of privacy: autonomy and initiative in teachers' professional relations", *Teachers College Record*, Vol. 91 No. 4, pp. 509-536.
- Lord, G. and Lomicka, L. (2014), "Twitter as a tool to promote community among language teachers", *Journal of Technology and Teacher Education*, Vol. 22 No. 2, pp. 187-212, available at: www.learntechlib.org/primary/p/49768/
- Lortie, D. (1975), *Schoolteacher: A Sociological Study*, edited by University of Chicago Press, Chicago.
- Loving, M. and Ochoa, M. (2011), "Facebook as a classroom management solution", *New Library World*, Vol. 112 Nos 3/4, pp. 121-130, doi: [10.1108/03074801111117023](https://doi.org/10.1108/03074801111117023).
- Marcelo, C., Gallego-Dominguez, C., Murillo-Esteba, P. and Marcelo-Martinez, P. (2018), "Aprender a acompañar: Análisis de diarios reflexivos de mentores en un programa de inducción", *Profesorado, Revista de Currículum y Formación Del Profesorado*, Vol. 22 No. 1, pp. 461-480, doi: [10.30827/profesorado.v22i1.9937](https://doi.org/10.30827/profesorado.v22i1.9937).
- Marcelo-Martínez, P. and Marcelo, C. (2022), "Espacios de afinidad docente en Twitter: El caso del hashtag #Claustrovirtual", *Revista de Educación a Distancia (RED)*, Vol. 22 No. 70, pp. 1-30, doi: [10.6018/red.510951](https://doi.org/10.6018/red.510951).
- Marcelo-Martínez, P. and Mosquera Gende, I. (2023), "Formadores informales en redes sociales: nuevas vías para el desarrollo profesional docente", *Anàlisi: Quaderns de Comunicació i Cultura*, Vol. 69, pp. 113-129, doi: [10.5565/rev/analisi.365](https://doi.org/10.5565/rev/analisi.365).
- Marcelo-Martínez, P., Yot-Dominguez, C. and Marcelo, C. (2024), "How and why teachers use social networks for professional learning", *Teacher Development*, Vol. 28 No. 3, pp. 1-13, doi: [10.1080/13664530.2023.2296611](https://doi.org/10.1080/13664530.2023.2296611).
- Marsick, V.J., Watkins, K.E., Scully-Russ, E. and Nicolaidis, A. (2017), "Rethinking informal and incidental learning in terms of complexity and the social context", *Journal of Adult Learning, Knowledge and Innovation*, Vol. 1 No. 1, pp. 27-34, doi: [10.1556/2059.01.2016.003](https://doi.org/10.1556/2059.01.2016.003).
- Martin, C. and Polly, D. (2017), *Handbook of Research on Teacher Education and Professional Development*, IGI Global, Hershey, PA.
- März, V. and Kelchtermans, G. (2020), "The networking teacher in action: a qualitative analysis of early career teachers' induction process", *Teaching and teacher education*, Vol. 87, pp. 1-14, doi: [10.1016/j.tate.2019.102933](https://doi.org/10.1016/j.tate.2019.102933).
- Meirink, J.A., Meijer, P.C., Verloop, N. and Bergen, T.C.M. (2009), "How do teachers learn in the workplace? An examination of teacher learning activities", *European Journal of Teacher Education*, Vol. 32 No. 3, pp. 209-224, doi: [10.1080/02619760802624096](https://doi.org/10.1080/02619760802624096).
- Miles, M.B. and Huberman, A.M. (1994), *Qualitative Data Analysis: A Methods Sourcebook*, Sage, Newbury Park, CA.
- Mosquera-Gende, I. (2023), "Aprendizaje informal en redes", *Twitter y las #CharlasEducativas*, Octaedro, Barcelona, doi: [10.36006/16414](https://doi.org/10.36006/16414).
- Mosquera-Gende, I., Marcelo-Martínez, P., Postigo-Fuentes, A.Y. and Fernández-Navas, M. (2024), "The hashtag #CharlasEducativas as a teacher affinity space on Twitter. [El hashtag #CharlasEducativas como espacio de afinidad docente en Twitter]", *Comunicar*, Vol. 32 No. 78, pp. 222-233, doi: [10.58262/V32I78.18](https://doi.org/10.58262/V32I78.18).
- Nochumson, T. (2018), "An investigation of elementary schoolteachers' use of twitter for their professional learning", Doctoral Dissertation, Columbia University.
- Nochumson, T. (2020), "Elementary schoolteachers' use of Twitter: exploring the implications of learning through online social media", *Professional Development in Education*, Vol. 46 No 2, pp. 306-323, doi: [10.1080/19415257.2019.1585382](https://doi.org/10.1080/19415257.2019.1585382).

-
- Opfer, V.D. and Pedder, D. (2011), "Conceptualizing teacher professional learning", *Review of Educational Research*, Vol. 81 No. 3, pp. 376-407, doi: [10.3102/0034654311413609](https://doi.org/10.3102/0034654311413609).
- Orland-Barak, L. (2014), "Mediation in mentoring: a synthesis of studies in teaching and teacher education", *Teaching and Teacher Education*, Vol. 44, pp. 180-188, doi: [10.1016/j.tate.2014.07.011](https://doi.org/10.1016/j.tate.2014.07.011).
- Orland-Barak, L. and Yinon, H. (2005), "Sometimes a novice and sometimes an expert: mentors' professional expertise as revealed through their stories of critical incidents", *Oxford Review of Education*, Vol. 31 No. 4, pp. 557-578, doi: [10.1080/03054980500355468](https://doi.org/10.1080/03054980500355468).
- Pounder, J.S. (2006), "Transformational classroom leadership", *Educational Management Administration & Leadership*, Vol. 34 No. 4, pp. 533-545, doi: [10.1177/1741143206068216](https://doi.org/10.1177/1741143206068216).
- Prestridge, S. (2019), "Categorising teachers' use of social media for their professional learning: a self-generating professional learning paradigm", *Computers & Education*, Vol. 129, pp. 143-158, doi: [10.1016/j.compedu.2018.11.003](https://doi.org/10.1016/j.compedu.2018.11.003).
- Putnam, R.T. and Borko, H. (2000), "What do new views of knowledge and thinking have to say about research on teacher learning?", *Educational Researcher*, Vol. 29 No. 1, pp. 4-15, doi: [10.3102/0013189X029001004](https://doi.org/10.3102/0013189X029001004).
- Rehm, M. and Notten, A. (2016), "Twitter as an informal learning space for teachers!? The role of social capital in Twitter conversations among teachers", *Teaching and Teacher Education*, Vol. 60, pp. 215-223, doi: [10.1016/j.tate.2016.08.015](https://doi.org/10.1016/j.tate.2016.08.015).
- Ryberg, T. and Christiansen, E. (2008), "Community and social network sites as technology enhanced learning environments", *Technology, Pedagogy and Education*, Vol. 17 No. 3, pp. 207-219, doi: [10.1080/14759390802383801](https://doi.org/10.1080/14759390802383801).
- Schei, V. and Nerbø, I. (2015), "The invisible learning ceiling: informal learning among preschool teachers and assistants in a Norwegian kindergarten", *Human Resource Development Quarterly*, Vol. 26 No. 3, pp. 299-328, doi: [10.1002/hrdq.21213](https://doi.org/10.1002/hrdq.21213).
- Shelton, C. and Archambault, L.M. (2019), "Who are online teacherpreneurs and what do they do? A survey of content creators on TeachersPayTeachers.com", *Journal of Research on Technology in Education*, Vol. 51 No. 4, pp. 398-414, doi: [10.1080/15391523.2019.1666757](https://doi.org/10.1080/15391523.2019.1666757).
- Shelton, C., Schroeder, S. and Curcio, R. (2020), "Instagramming their hearts out: what do influencers share on Instagram?", *Contemporary Issues in Technology and Teacher Education*, Vol. 20 No. 3, pp. 529-554, available at: www.learntechlib.org/primary/p/215623/
- Shulman, L. (1987), "Knowledge and teaching: foundations of the new reform", *Harvard Educational Review*, Vol. 57 No. 1, pp. 1-23, doi: [10.17763/haer.57.1.j463w79r56455411](https://doi.org/10.17763/haer.57.1.j463w79r56455411).
- Smith Risser, H. (2013), "Virtual induction: a novice teacher's use of Twitter to form an informal mentoring network", *Teaching and Teacher Education*, Vol. 35, pp. 25-33, doi: [10.1016/j.tate.2013.05.001](https://doi.org/10.1016/j.tate.2013.05.001).
- Staudt Willet, K.B. (2019), "Revisiting how and why educators use twitter: tweet types and purposes in #Edchat", *Journal of Research on Technology in Education*, Vol. 51 No. 3, pp. 273-289, doi: [10.1080/15391523.2019.1611507](https://doi.org/10.1080/15391523.2019.1611507).
- Staudt Willet, K.B. (2023), "Early career teachers' expansion of professional learning networks with social media", *Professional Development in Education*, Vol. 50 No. 2, pp. 1-17, doi: [10.1080/19415257.2023.2178481](https://doi.org/10.1080/19415257.2023.2178481).
- Szeto, E., Yan-Ni Cheng, A. and Hong, J.C.H. (2015), "Learning with social media: how do preservice teachers integrate YouTube and social media in teaching?", *The Asia-Pacific Education Researcher*, Vol. 25 No. 1, pp. 35-44, doi: [10.1007/s40299-015-0230-9](https://doi.org/10.1007/s40299-015-0230-9).
- Tabachnick, B.G. and Fidell, L.S. (2007), *Using multivariate statistics*, 5th ed., Allyn & Bacon/Pearson Education, New York, NY.
- Tang, Y. and Hew, K.F. (2017), "Using Twitter for education: beneficial or simply a waste of time?", *Computers & Education*, Vol. 106, pp. 97-118, doi: [10.1016/j.compedu.2016.12.004](https://doi.org/10.1016/j.compedu.2016.12.004).

- Thomas, L., Tuytens, M., Devos, G., Kelchtermans, G. and Vanderlinde, R. (2019), "Beginning teachers' professional support: a mixed methods social network study", *Teaching and Teacher Education*, Vol. 83, pp. 134-147, doi: [10.1016/j.tate.2019.04.008](https://doi.org/10.1016/j.tate.2019.04.008).
- Torphy, K.T. and Drake, C. (2019), "Educators meet the fifth estate: the role of social media in teacher training", *Teachers College Record*, Vol. 121 No. 14, pp. 1-26, doi: [10.1177/016146811912101406](https://doi.org/10.1177/016146811912101406).
- Trust, T., Krutka, D.G. and Carpenter, J.P. (2016), "'Together we are better': professional learning networks for teachers", *Computers & Education*, Vol. 102, pp. 15-34, doi: [10.1016/j.compedu.2016.06.007](https://doi.org/10.1016/j.compedu.2016.06.007).
- Trust, T., Carpenter, J.P., Krutka, D.G. and Kimmons, R. (2020), "#RemoteTeaching & #RemoteLearning: educator tweeting during the COVID-19 pandemic", *Journal of Technology and Teacher Education*, Vol. 28 No. 2, pp. 151-159.
- Turner, J.C., Christensen, A., Kackar-Cam, H.Z., Fulmer, S.M. and Trucano, M. (2018), "The development of professional learning communities and their teacher leaders: an activity systems analysis", *Journal of the Learning Sciences*, Vol. 27 No. 1, pp. 49-88, doi: [10.1080/10508406.2017.1381962](https://doi.org/10.1080/10508406.2017.1381962).
- Van Waes, S., Van den Bossche, P., Moolenaar, N.M., De Maeyer, S. and Van Petegem, P. (2015), "Know-who? Linking faculty's networks to stages of instructional development", *Higher Education*, Vol. 70 No. 5, pp. 807-826, doi: [10.1007/s10734-015-9868-8](https://doi.org/10.1007/s10734-015-9868-8).
- Vizcaíno-Verdú, A. and Abidin, C. (2023), "TeachTok: teachers of TikTok, micro-celebrification, and fun learning communities", *Teaching and Teacher Education*, Vol. 123, p. 103978, doi: [10.1016/j.tate.2022.103978](https://doi.org/10.1016/j.tate.2022.103978).
- Yildirim, I. (2019), "Using Facebook groups to support teachers' professional development", *Technology, Pedagogy and Education*, Vol. 28 No. 5, pp. 589-609, doi: [10.1080/1475939X.2019.1686714](https://doi.org/10.1080/1475939X.2019.1686714).
- Zhukova, O. (2018), "Novice teachers' concerns, early professional experiences and development: implications for theory and practice". *Discourse and communication for sustainable education*, Vol. 9 No. 1, pp. 100-114, doi: [10.2478/dcse_2018-0008](https://doi.org/10.2478/dcse_2018-0008).

PC	Item	If item dropped		Item-rest correlation	PCA component loading	EFA Component loading	
		McDonald's ω	Cronbach's α				
1	1	0.957	0.958	0.553	0.790	0.757	
	2	0.957	0.958	0.542	0.905	0.876	
	4	0.957	0.958	0.514	0.669	0.613	
	5	0.956	0.957	0.644	0.685	0.655	
	13	0.957	0.958	0.527	0.877	0.840	
	14	0.956	0.957	0.721	0.802	0.799	
	16	0.956	0.957	0.657	0.616	0.587	
	19	0.956	0.957	0.643	0.597	0.564	
	20	0.956	0.958	0.629	0.708	0.676	
	23	0.955	0.957	0.720	0.356	0.349	
	25	0.956	0.957	0.681	0.586	0.570	
	29	0.955	0.957	0.763	0.446	0.435	
	33	0.957	0.958	0.572	0.807	0.775	
	2	11	0.957	0.958	0.528	0.470	0.432
		21	0.957	0.958	0.481	0.636	0.524
22		0.957	0.958	0.564	0.846	0.777	
24		0.957	0.958	0.561	0.760	0.715	
26		0.956	0.957	0.705	0.636	0.619	
27		0.956	0.958	0.623	0.847	0.837	
28		0.956	0.957	0.663	0.562	0.527	
30		0.955	0.957	0.735	0.526	0.502	
31		0.957	0.958	0.569	0.832	0.761	
32		0.956	0.957	0.636	0.775	0.750	
3	3	0.956	0.958	0.617	0.535	0.472	
	6	0.956	0.958	0.600	0.639	0.574	
	7	0.956	0.957	0.685	0.696	0.698	
	8	0.956	0.957	0.660	0.880	0.879	
	9	0.955	0.957	0.696	0.695	0.676	
	10	0.956	0.957	0.666	0.532	0.487	
	12	0.956	0.957	0.652	0.752	0.726	
	15	0.956	0.957	0.675	0.686	0.646	
	17	0.956	0.958	0.577	0.371	0.331	
18	0.955	0.957	0.718	0.574	0.543		

Table A1.
Frequentist
individual item
reliability statistics
and component
loadings for the
preservice teachers'
scale

Source: Table by authors

Exploring the motives for using social networks

PC	Item	If item dropped		Item-rest correlation	PCA component loading	EFA component loading
		McDonald's ω	Cronbach's α			
1	2	0.961	0.960	0.688	0.791	0.751
	5	0.961	0.961	0.601	0.709	0.647
	14	0.960	0.960	0.717	0.823	0.796
	15	0.961	0.960	0.653	0.591	0.549
	17	0.961	0.960	0.694	0.667	0.628
	21	0.960	0.960	0.750	0.824	0.808
	22	0.960	0.960	0.732	0.850	0.838
	23	0.960	0.960	0.732	0.794	0.767
	24	0.960	0.959	0.768	0.751	0.728
2	1	0.960	0.960	0.726	0.474	0.481
	3	0.961	0.961	0.628	0.623	0.588
	4	0.960	0.960	0.710	0.694	0.672
	6	0.960	0.960	0.716	0.482	0.488
	7	0.960	0.960	0.706	0.739	0.713
	8	0.960	0.959	0.772	0.722	0.710
	9	0.961	0.961	0.634	0.800	0.758
	10	0.962	0.962	0.502	0.601	0.533
	11	0.961	0.960	0.680	0.612	0.585
	12	0.961	0.960	0.661	0.698	0.664
	13	0.960	0.959	0.755	0.818	0.813
	16	0.960	0.959	0.758	0.769	0.759
	18	0.960	0.960	0.723	0.525	0.525
	19	0.960	0.959	0.765	0.703	0.691
20	0.960	0.960	0.737	0.684	0.668	

Table A2.
Frequentist individual item reliability statistics and component loadings for the in-service teachers' scale

Source: Table by authors

Item	Intersubject effects test (sig.)		Age*		HSD Tukey	Scheffe
	Sex	Age	Age bracket	Age bracket		
22	0.323	0.019	1	4	0.014	0.028
28	0.752	0.011	2	4	0.007	0.016
30	0.905	0.004	1	4	0.040	0.071
			2	4	0.005	0.011

Table A3.
Tukey and Scheffe effects test for factor 2 "academic learning" of preservice teachers

Note: *Equivalence of age brackets: (1) 20 years or younger, (2) 21–25 years, (3) 26–30 years and (4) 31 years or older

Source: Table by authors

ILS

Item	Intersubject effects test (sig.)		Age*		HSD Tukey	Scheffe
	Sex	Age	Age bracket	Age bracket		
1	0.000	0.003	1	3	0.032	0.058
			1	4	0.004	0.009
			2	3	0.013	0.026
			2	4	0.001	0.002
2	0.005	0.030	2	4	0.006	0.014
			5	4	0.037	0.066
5	0.037	0.009	2	4	0.002	0.005
			13	4	0.010	0.059
13	0.010	0.002	2	3	0.008	0.017
			2	4	0.003	0.007
			14	3	0.046	0.083
14	0.046	0.000	2	4	0.000	0.000
			23	4	0.075	0.012
23	0.075	0.001	1	4	0.005	0.073
			2	3	0.042	0.002
			2	4	0.001	0.001
29	0.313	0.000	1	4	0.000	0.000
			33	4	0.392	0.001
33	0.392	0.000	1	4	0.001	0.001
			2	4	0.000	0.001

Table A4. Tukey and Scheffe effects test for factor 1 “professional learning and teacher collaboration” of preservice teachers

Note: *Equivalence of age brackets: (1) 20 years or younger, (2) 21–25 years, (3) 26–30 years and (4) 31 years or older
Source: Table by authors

Item	Inter-subject effects test (sig.)		Age*		HSD Tukey	Scheffe
	Sex	Age	Age bracket	Age bracket		
6	0.899	0.023	1	4	0.048	0.083
			2	4	0.029	0.054
7	0.583	0.015	2	4	0.010	0.021
			9	4	0.722	0.042
10	0.562	0.002	2	4	0.005	0.012
			1	4	0.004	0.009
			2	4	0.028	0.052
15	0.171	0.001	1	4	0.011	0.022
			2	4	0.004	0.008
18	0.398	0.002	1	4	0.005	0.012
			2	4	0.010	0.021

Table A5. Tukey and Scheffe effects test for factor 3 “connection and mutual support” of preservice teachers

Note: *Equivalence of age brackets: (1) 20 years or younger, (2) 21–25 years, (3) 26–30 years and (4) 31 years or older
Source: Table by authors

Item	Intersubject effects test (sig.)		Years of experience*		HSD Tukey	Scheffe
	Sex	Years of experience	Tranche of years	Tranche of years		
3	0.142	0.033	1	3	0.020	0.054
4	0.586	0.047	1	3	0.034	0.084
6	0.007	0.038	3	4	0.022	0.059
7	0.840	0.049	3	4	0.034	0.083
18	0.257	0.017	2	3	0.007	0.024

Table A6.
Tukey and Scheffe effects test for factor 2 “support and belonging” of in-service teachers

Note: *Equivalency of years of experience tranches: (1) 5 years or less, (2) 6–10 years, (3) 11–15 years, (4) 16–20 years and (5) more than 20 years

Source: Table by authors

Corresponding author

Paula Marcelo-Martínez can be contacted at: pmarcelo@us.es

For instructions on how to order reprints of this article, please visit our website:

www.emeraldgroupublishing.com/licensing/reprints.htm

Or contact us for further details: permissions@emeraldinsight.com