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Research paper

Why pre-service teachers do not use social media for professional purposes: A mixed-methods study using the will-skill-tool framework

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ABSTRACT

Social media can support teachers' informal professional learning, yet professional non-use remains underexamined. This mixed-methods study investigates pre-service teachers' non-use of social media for professional purposes using the Will–Skill–Tool (WST) framework. In a cross-sectional survey of 147 pre-service teachers, users and non-users are compared on motivation, perceived relevance, and self-assessed skill. A MANOVA indicates significant group differences, with users scoring higher across all WST dimensions; differences are strongest for Will (motivation and relevance). Open-ended responses from non-users are coded into eight reason categories. The most frequent reasons are maintaining boundaries between private and professional life and perceiving no added professional value. Additional reasons include exclusive private use, lack of prior professional use without a specific reason, limited knowledge of professional use, self-protection, time/technical constraints, and privacy/legal concerns. Findings suggest teacher education should offer low-threshold, critically guided opportunities to explore professional social media use while respecting deliberate non-use.

1. Introduction

Social media has become an important form of informal, self-directed teacher professional development (TPD), with a growing body of research examining how and why teachers engage with it in their professional lives (Bruguera et al., 2019; Carpenter et al., 2024; Greenhow et al., 2020, 2023; Marcelo-Martínez et al., 2024; Mercado & Shin, 2025). Informal professional learning refers to teacher development that occurs without formal structuring or planning, often embedded in daily teaching practice and driven by spontaneous engagement (Kyndt et al., 2016). Self-directed teacher professional development, in contrast, emphasizes the teacher's initiative in identifying personal learning needs and autonomously selecting tools, networks, or resources to meet them, often in personalized and flexible ways through social media (Prestridge et al., 2019). Prior work provides valuable insights into the benefits of teacher social media use, including accessing and sharing resources (Schroeder et al., 2019; Seraji et al., 2023; Woodford et al., 2023), giving and receiving instructional or emotional support (Kelly & Antonio, 2016; Na & Staudt Willet, 2024; Richter et al., 2022), expanding professional communities and networks (Richter et al., 2024; Staudt Willet, 2024; Trust et al., 2016; Xue et al., 2021) and identity affirmation and development (Carpenter et al., 2019; Fox & Bird, 2017; Hartung et al., 2023). Some scholars point out that most existing research, such as the studies cited earlier, focus on teachers who already use social media (Kelly et al., 2021; Manca & Ranieri, 2016; Vicente, 2023). Much less is known about the perspectives of teachers who choose not to use these platforms for professional purposes. Given the aforementioned potential benefits of social media use for teachers, the decision not to use these platforms for professional purposes is a non-trivial matter. The gap in knowledge regarding non-users is partly methodological: many studies recruit participants directly through social media, thereby systematically excluding non-users and thus failing to hear from "hard to capture 'anti' voices" (Owen et al., 2016, p. 171). Understanding why some teachers avoid these spaces is important for developing inclusive and responsive professional learning opportunities.

This study investigates why pre-service teachers choose not to use social media for professional purposes, using the Will–Skill–Tool framework to examine motivational, competence-related, and

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contextual barriers. We address two gaps in existing research: a sample gap, by including pre-service teachers who do not use social media and are usually absent from platform-based studies (Owen et al., 2016), and a thematic gap, by examining the prerequisites for and reasons behind their non-use of social media for professional purposes. In doing so, this study contributes to a more nuanced understanding of pre-service teachers' professional social media engagement and offers insights for supporting more context-sensitive professional learning strategies in a digital age.

2. Theoretical background

Social media has become an important site of informal and self-directed TPD, and recent work has documented in detail how teachers can use these platforms to support their learning and practice (Bruguera et al., 2019; Carpenter et al., 2024; Greenhow et al., 2020, 2023; Marcelo-Martínez et al., 2024; Mercado & Shin, 2025). Informal professional learning, typically unstructured, embedded in everyday work, and arising spontaneously (Kyndt et al., 2016), is often complemented by self-directed engagement, in which teachers independently identify learning needs and select digital tools and communities that match their interests (Prestridge, 2019). Furthermore, social media represents a form of information and communication technology (ICT) that allows teachers to engage with professional content and peers beyond temporal, geographical, and institutional constraints (Mercado & Shin, 2025). Platforms such as Facebook, Instagram, and TikTok enable "anytime, anywhere" participation in professional discourse (Greenhow et al., 2023, p. 679) and research includes many examples of teacher-users asserting that these platforms support personalized, interest-driven learning (e.g., Marcelo-Martínez & Marcelo, 2025; Oddone et al., 2019; Trust et al., 2016; van Bommel et al., 2020) and are preferable or superior to standardized TPD programs (e.g., Carpenter & Krutka, 2015; Prestridge, 2019; Visser et al., 2014). Particularly for teachers in schools with limited collaboration or in remote contexts, social media provides a venue for professional exchange and growth (Staudt Willet, 2024). Yet despite these affordances, teachers' engagement with social media for professional learning remains uneven, ranging from enthusiastic adoption to complete abstention.

Addressing teachers' abstention requires a framework that captures not only the affordances and benefits of social media but also the conditions under which teachers decide not to engage. This study adopts Knezek and Christensen's (2016) Will-Skill-Tool (WST) framework to understand differences in teacher participation. It provides such a lens by conceptualizing digital practice as depending on the joint presence of motivation and perceived relevance (Will), competence (Skill), and access (Tool). Because the WST framework allows for the identification of specific gaps, whether related to Will, Skill, or Tool—it is particularly well suited to examine intentional abstention.

Compared to other models such as the Technology Acceptance Model (TAM; Davis, 1989) or the Technological Pedagogical Content Knowledge (TPACK; Koehler & Mishra, 2009) framework, which often emphasize conditions under which adoption occurs (e.g., perceived usefulness, ease of use, or technological knowledge integration), the WST framework provides a more diagnostic lens for identifying distinct barriers to use. Its tripartite structure makes it particularly effective for examining abstention, as it does not assume a default trajectory toward adoption but instead allows for non-use to be theorized as the result of deficits in motivation (Will), competence (Skill), or opportunity (Tool). This makes WST well suited to analyze the nuanced and context-dependent reasons teachers may choose to disengage.

2.1. Conceptualizing non-use as a deficit in the WST framework

The WST framework not only guides the present study but also helps conceptualize non-use as a meaningful, theory-aligned outcome. It can provide understanding of both participation and non-participation in professional social media use. Woltran et al. (2022) showed that teachers who actively use technology demonstrate similarly high values across the three WST dimensions, whereas those who refrain typically experience constraints in one or more areas. For instance, teachers with consistent access to technology and platforms may still lack the confidence to post or interact professionally, indicating a *Skill* deficit.

Qualitative and survey-based evidence adds further related evidence: Adu-Marfo et al. (2024) found that teachers' beliefs about their own competence significantly affected whether and how they integrated social media tools into teaching. Conversely, even digitally competent teachers may view social media as irrelevant or inappropriate for professional growth as a reflection of a *Will* deficit. Through the previous application of the WST framework to ICT integration practices, it has been shown that teachers with similar levels of *Skill* and access to *Tools* can still differ markedly in usage based on their attitudes toward the relevance of such tools (Petko, 2012). Recent empirical applications of WST to teacher learning environments underscore that engagement occurs primarily when all three components are present (Woltran et al., 2022). This interdependence enables a conceptualization of non-use as a deficit within the WST framework: digital disengagement results from the absence or insufficiency of one or more components.

Importantly, the WST dimensions are mutually conditional, meaning that strength in one domain cannot fully compensate for deficits in another (Woltran et al., 2022). This theoretical stance is supported by prior research showing that professional digital disengagement is not necessarily passive but may reflect deliberate identity boundaries, concerns about social norms, or context-specific values (Carpenter et al., 2019; Lantz-Andersson et al., 2018; Petko, 2012).

While the WST framework helps explain participation and abstention, it is also essential to consider the broader benefits that social media can afford to professional learning. Research highlights a broad range of benefits associated with teachers' professional social media use. Professional learning networks (PLNs) established on these platforms can provide informational, instructional, and emotional support (Richter et al., 2024; Trust et al., 2016). Such networks can enhance teacher agency, allowing teachers to advocate, affirm their professional identity, and share their perspectives beyond institutional boundaries (Greenhow et al., 2021; Robson, 2018). Social media also fosters collaborative learning, as teachers exchange resources, strategies, and pedagogical insights that potentially expand their professional repertoire and sustain a culture of continuous learning (Mercado & Shin, 2025; Prestridge, 2019; Staudt Willet, 2024). Beyond knowledge sharing, online communities can contribute to teachers' emotional wellbeing, providing collegial support that reduces isolation and builds belonging (Lantz-Andersson et al., 2018; Mercieca & Kelly, 2018; Willis et al., 2023). Teachers may also use social media to articulate and expand their professional identities, reinforcing visibility and recognition through public engagement with educational issues (Davis & Yi, 2022; Robson, 2018). Finally, the flexibility and accessibility of social media make it an attractive form of self-directed professional learning, as teachers can access resources and insights on demand and tailor participation to individual needs (Nochumson, 2020; Prestridge, 2019; Trust et al., 2016). Especially pre-service and early-career teachers may engage actively with social media to compensate for limited classroom experience, with some teacher education programs integrating these platforms to support professional growth (Iredale et al., 2020).

At the same time, teachers' engagement with social media is highly differentiated. Some teachers actively post, comment, and share, while others adopt more peripheral roles such as "lurking" or "listening," where they observe without contributing (Prestridge, 2019; Trust et al., 2016; Woodford et al., 2023). Online PLNs reflect this spectrum, with teachers assuming roles ranging from consumers to networkers to active contributors, each role affording distinct opportunities for learning (Lantz-Andersson et al., 2018). Participation is shaped not only by individual confidence, motivation, and digital literacy but also by platform affordances. X, formerly Twitter, for instance, was for more than a

decade popular with many teachers for rapid idea exchange, while platforms such as Facebook and WeChat have supported sustained community interactions (Carpenter et al., 2023; Patahuddin et al., 2022; Xue et al., 2021). Contextual factors such as teaching experience and institutional culture likewise play a role, with novice and pre-service teachers often relying on observation before contributing themselves (Benko et al., 2016; Kelly & Antonio, 2016; Marcelo-Martínez et al., 2024). Importantly, this variation extends to non-use, where some teachers refrain from professional social media engagement altogether, making abstention a significant dimension of digital professional life. Such differentiated engagement underscores that abstention is not merely an absence of activity but may reflect distinct barriers. Understanding these barriers requires a more systematic examination grounded in the Will-Skill-Tool framework.

2.2. Empirical findings on WST-aligned barriers

To understand why some teachers refrain from engaging professionally on social media, we now turn to a detailed discussion of the specific barriers aligned with WST. While social media offers multiple benefits, it is important to examine why these affordances often do not lead to adoption. A close examination of reported barriers to professional social media use provides a theoretical basis for prerequisites and reasons for non-use. The WST framework seems to be particularly useful here: a growing number of studies report that barriers during use and reasons for non-use can be categorized into motivational, skill-related, and contextual mechanisms. The present study examines pre-service teachers' professional social media use through the WST framework by (a) comparing users and non-users on WST-related dimensions, (b) identifying the reasons non-users report for refraining from professional social media use, and (c) exploring whether WST-related dimensions differ among non-users depending on their reported reasons.

In terms of *Will,* teachers may lack motivation to use social media for professional purposes because they remain unconvinced that it offers sufficient value, particularly to outweigh potential associated risks. Qualitative studies indicate that the constant flow of informational updates can generate cognitive overload for some users, which undermines reflective engagement and reduces perceived usefulness or can be connected to users' stress (Carpenter et al., 2020; Carpenter & Harvey, 2019; Fyfield et al., 2021; Meyer et al., 2025). Simultaneously, concerns about privacy, datafication, cyberviolence, and the blurring of professional and personal boundaries have been reported in several studies and appear to amplify fears of reputational harm or misinterpretation, discourage active participation, or even prompt complete abstention (Carpenter & Harvey, 2019; Nagle, 2018).

Skill-related barriers may also deter use, as some teachers may find social media platform features or norms to be opaque or difficult to learn (e.g., Nejadghanbar et al., 2024). For example, in a study of teacher TikTok use, 45% of the participants only lurked on the platform and several of these individuals indicated they did not themselves post content because of the perceived difficulty of learning how to create TikTok content, particularly content that would attract an audience on the platform (Carpenter et al., 2024). Different social media platforms and subcommunities within them can develop vernaculars that include linguistic conventions and memes (Vicari & Ditchfield, 2025), and some teachers may feel they lack sufficient familiarity or fluency with such vernaculars. Low self-efficacy in navigating platforms and aligning them with instructional aims tends to result in superficial or no participation in these online communities at all (Lantz-Andersson et al., 2018).

Contextual conditions can play a decisive role as well, as some teachers may lack convenient access to the *Tools* needed to make productive professional use of social media. The time pressures from tasks related to teaching, lesson planning, grading, and administrative tasks are well-documented (Jerrim & Sims, 2021). Although some teachers see social media as a means of helping them manage the many demands on their time (e.g., Willis et al., 2023), other teachers have reported that heavy workloads reduce their capacity for professional social media engagement (Carpenter & Harvey, 2019). Furthermore, ambiguous or restrictive institutional policies around social media use have been described by some studies to create perceptions of risk or perceived unprofessionalism, reducing legitimacy and some teachers' willingness to engage (Marín et al., 2022; Muls et al., 2020). The very design of mainstream social media, optimized for entertainment and casual interaction, also mismatches the structured, reflective discourse often needed for professional learning, causing some teachers to disengage, as Lantz-Andersson et al. (2018) suggest. Even though the WST framework has been extensively used to analyze ICT integration (Petko, 2012; Woltran et al., 2022), it has rarely been applied to teachers' social media use.

In sum, the literature supports three clear categories of reasons for non-use that align with WST: (1) motivational barriers, for example low perceived value, overload, and privacy or identity-management concerns; (2) skill-related constraints, for example low digital or pedagogical self-assessed competence; and (3) contextual barriers to tool access, for example time scarcity, unsupportive or ambiguous institutional environments, and misaligned platform affordances. These categories offer a useful theoretical foundation for analyzing why some pre-service teachers may opt out entirely from using social media for professional purposes. They also suggest measurable factors associated with non-use and mechanisms that limit engagement depth among users.

3. Research aims

Although the benefits of and barriers to social media use for professional development have been increasingly documented, we know little about teachers who actively choose not to engage with such platforms. Most studies on teachers' use of social media for professional development, including the ones discussed in this study's theoretical background, rely on convenience samples drawn from social media environments, introducing a selection bias that systematically excludes non-users. As a result, their perspectives have remained largely absent from the literature (Owen et al., 2016). Preliminary evidence suggests that non-use is shaped by a variety of factors, including challenges for users, such as discomfort with work-life balance and doubts about the pedagogical value of social media (Fox & Bird, 2017; Willis et al., 2023). More empirical studies are needed that treat non-use as a meaningful phenomenon with its own patterns. This study responds to that gap by using the WST framework to investigate teachers' professional social media use through an approach including both quantitative and qualitative data. Using a mixed-methods approach, we pursue three complementary aims: first, to examine how WST-related dimensions are associated with professional social media use status (users vs. non-users); second, to document and systematize non-users' stated reasons for refraining from professional use; and third, to examine the differences in WST-related dimensions between reasons for non-use. We therefore address these research questions.

- RQ1: How do users and non-users differ in terms of personal characteristics, motivation, perceived relevance, and self-assessed skill?
- RQ2: What reasons do non-users report for not using social media professionally?
- RQ3: How do motivation, perceived relevance, and self-assessed skill differ among non-users based on their reported reasons?

By investigating these questions, the study aims to offer a more complete picture of informal and self-directed TPD in the digital age. It contributes to a deeper understanding of why teachers engage, or choose not to engage, with social media as part of their professional learning and points toward more differentiated strategies for supporting TPD in diverse teaching contexts.

4. Methodology

4.1. Study design and data collection

This study employed an explanatory sequential mixed-methods design combining closed-ended questionnaire data with open-ended responses (Creswell, 2015). While quantitative data included demographic variables and Likert-scale measures aligned with the WST framework to examine characteristics of pre-service teachers who engage with or refrain from professional social media, open-ended responses were drawn from non-users' open-ended responses to gain more detailed insight into their stated reasons for abstention. Finally, this study also examines the relationship between non-users' characteristics and their stated reasons for non-use. Data collection took place between May 2023 and July 2024 via a structured questionnaire administered in paper and pencil in courses accompanying student teaching in the teacher education program for primary and secondary education at a German university.

Although prior research on teacher social media use (and non-use) has predominantly focused on practicing teachers, pre-service teachers represent a critical population for investigation. Their professional identities are still forming, and their decisions about adopting or rejecting social media use may shape long-term practices once they enter the profession (Carpenter et al., 2023). Moreover, the pre-service teachers in this study were engaged in student teaching, which provided them with valuable practical experiences in schools. This context enabled them to critically evaluate the usefulness of social media for professional learning, making them a particularly informative sample for addressing the research questions.

4.2. Sample

The final sample included 147 pre-service teachers at a German university. A large majority identified as female (80.3%, $n = 118$). Participants represented a range of academic stages: 36.1% were in their first or second semester,[1] 55.8% in their third or fourth, and the remainder (8.2%) in fifth or higher semesters. With respect to school type, 41.5% were preparing to teach in primary schools and 58.5% for secondary education.

Social media access was widespread: 95.2% of the sample reported having at least one account with a social media platform. Despite this, only 44.9% ($n = 66$) stated that they used social media for professional purposes. The remaining 55.1% ($n = 81$) did not use it for professional networking, learning, or development, allowing for group comparisons between users and non-users.

All participants received written information about the study (purpose, procedures, voluntariness, and data protection) and provided informed consent prior to participation. Participation was voluntary and could be discontinued at any time without any negative consequences. Data were handled in line with applicable data protection requirements and principles of good research practice: responses were anonymized for analysis, stored securely with access restricted to the research team, and reported only in aggregated form or with de-identified quotations to minimize any risk of re-identification.

4.3. Measures

4.3.1. Quantitative data

Quantitative constructs were measured with self-developed 4-point Likert scales ranging from 1 = Completely disagree to 4 = Completely agree, with four items for each construct. Motivation captured participants' willingness to use social media professionally (e.g., "I am motivated to use social media to develop professionally", Cronbach's $\alpha = .89$). Perceived relevance assessed how applicable social media was considered to be for educational work (e.g., "Social media is relevant for my work as a future teacher", $\alpha = .92$). Both variables represented the *Will* component in the WST framework. Self-assessed skill measured confidence in navigating social media in a professional context (e.g., "I know how to use social media in a professional way", $\alpha = .89$). To ensure validity, the constructs used (see Appendix A for the full survey instruments) were developed by multiple researchers based on existing literature (Knezek & Christensen, 2016). Additionally, a confirmatory factor analysis (CFA) was conducted to examine whether the proposed three-factor structure adequately represented the data. Based on the criteria suggested in the literature (Berg et al., 2023), the model showed good incremental fit (CFI), acceptable TLI, a borderline RMSEA, and an acceptable SRMR ($\chi^2(51) = 114.91$, $p < .001$; CFI = .953 and TLI = .939; RMSEA = .091 (90% CI = [.069, .114]); SRMR = .053). This pattern suggests that the three-factor solution provides a reasonable approximation of the data structure, consistent with theoretical expectations, despite the somewhat elevated RMSEA, which is not uncommon in models with relatively few indicators per factor and moderate sample sizes.

Further, categorical items included gender, semester of study, educational level (primary vs. secondary), and social media account ownership (*Tool*). Usage status, whether or not the pre-service teachers used social media for professional purposes, was determined using a binary item asking whether social media was used professionally.

4.3.2. Qualitative data

Non-users responded to an open-ended prompt to capture reasons for non-use (see *Reasons for non-use* for the exact prompt in Appendices). We analyzed these responses using a hybrid deductive–inductive thematic analysis, understood as a systematic approach to identifying and organizing patterned meanings across a qualitative dataset (Braun & Clarke, 2006). Consistent with the brevity of open-ended survey responses, we report the results as descriptive categories (i.e., patterned response types) rather than fully interpretive themes. We began with an a priori codebook derived from prior research on professional (non-)use of social media, e.g., lack of perceived professional benefit, time/organizational constraints, privacy and data protection concerns, technical or institutional barriers, and pedagogical/social reservations (Fox & Bird, 2017; Willis et al., 2023). In line with this approach, the coding scheme was refined iteratively: responses were first coded using the initial scheme, the research team reviewed mismatches and ambiguities, and codes were clarified, merged, or added when content could not be meaningfully captured by existing categories (Saldaña, 2021). This resulted in additional data-driven categories that captured nuances not fully represented in the initial scheme, such as exclusive private use, diffuse/misunderstood responses, and self-protection-oriented avoidance (see Table 1).

To address saturation transparently, we assessed codebook stability during the iterative refinement process by tracking whether additional responses necessitated new categories. Because open-ended survey responses often vary in depth and specificity, we treat saturation here as an indicator of diminishing returns and stability of the coding framework, rather than a strict threshold (Guest et al., 2020; Tran et al., 2016). In our analysis, later responses primarily provided further instances of existing categories; when categories were added, they were integrated into the final codebook and applied across the full dataset to ensure consistent coding. Following recommendations for reliability in applied qualitative coding, two independent raters coded each response using the finalized codebook (McHugh, 2012). Interrater reliability was high (Cohen's $\kappa = .81$ to 1.00).

[1] The bachelor's program in teacher education at this German university typically consists of six semesters, although students may choose to extend their studies, e.g. to study abroad.

Table 1
Coding scheme for reasons of non-users.

Category	Cohen's κ	Definition	Examples
Separation of professional and private life	.94	The person wants a clear separation between private and professional use of social media. They find mixing both spheres inappropriate or burdensome.	"I want to keep my private social media accounts private. School-related matters have no place there."; "Social media is for my free time."
No prior use without specific reason	.85	There are no concrete objections or obstacles; usage simply hasn't occurred yet.	"It just hasn't come up."; "I haven't thought about it."; "I've never considered using social media for that."
No added value for school	1.00	The person sees no benefit or relevance in using social media professionally. It is considered irrelevant or not purposeful.	"I haven't seen a meaningful use for it."; "Short videos are too chaotic to be useful."; "No need."
Concerns about data privacy and legal issues	.90	Data protection, legal uncertainty, or lack of permission are cited as reasons.	"Due to data protection."; "Privacy rules have to be followed."; "Not permitted."
Lack of knowledge about professionalization opportunities	.93	The person feels they lack competence or don't know how to use social media professionally.	"I haven't thought enough about how to use it for school."; "I wouldn't know how to use these platforms."; "I don't know how."
Resources (technical barriers or time constraints)	.84	Use is hindered by lack of equipment, limited time, or preference for other tools.	"I didn't have time to look into it."; "No tablets at my internship school."; "Other tools are better, like Teams."
Desire to protect oneself or students from social media	1.00	Use is reduced or avoided to protect health or manage time.	"I try to use social media less."; "I want to spend less time online."; "To have time for myself without the phone."
Exclusively private use	.90	Social media is used only passively or for private, non-professional purposes.	"I have Instagram but rarely use it."; "I use it for hobbies like horseback riding."; "For entertainment or information about films and games."

4.4. Analytical procedures

For RQ1, group differences between users and non-users were tested using chi-square analyses for categorical variables reporting effect size Cramer's V (Gender, Experience, Educational Level, Social Media Account) and a one-way MANOVA for continuous measures reporting effect size partial η^2 (motivation, perceived relevance, perceived skill). RQ2 was addressed through thematic analysis of open-ended responses from non-users (Braun & Clarke, 2006). To answer RQ3, a series of one-way MANOVAs were conducted within the non-user group to test whether self-reported motivation, perceived relevance, or self-assessed skill differed by reason category, again reporting the effect size partial η^2.

4.5. Missing data and imputation

Prior to the main analysis, the dataset was screened for missing values. Missingness was overall minimal and restricted to the self-assessed skill scale (1.4%). To evaluate the assumption that values were missing at random (MAR), Little's MCAR test (Little, 1988) was conducted. The test was non-significant, indicating that the missing data could be treated as missing at random. Cases with indications of systematic, non-random missingness (i.e., participants who skipped all items on motivation, relevance and skill) were excluded from the dataset to prevent bias. To handle the remaining missing values, we applied multiple imputation using the mice package in RStudio (v. 2025.05.1 Build 513; van Buuren & Groothuis-Oudshoorn, 2011). Predictive Mean Matching (PMM) was selected as the imputation method (Dong & Peng, 2013). We generated 20 imputed datasets to ensure stable pooled estimates (Rubin, 1987). The imputation model included all central study variables as well as demographic controls (e.g., sex, semester, educational level, access to digital devices). Including these auxiliary variables improves the quality of the imputations by incorporating information that predicts both the presence of missingness and the likely values of missing data (Collins et al., 2001). Subsequent analyses (chi-square tests, MANOVAs) were performed separately on each of the 20 datasets and then pooled according to Rubin's rules (1987). This approach yields unbiased parameter estimates, properly reflects the uncertainty due to missingness, and retains statistical power compared to listwise deletion.

5. Results

This section reports the findings of the three research questions. Section 5.1 examines differences between users and non-users across the Will-Skill-Tool dimensions (RQ1). Section 5.2 summarizes reasons for non-use (RQ2). Section 5.3 tests whether motivation, perceived relevance, and self-assessed skill differ across reason categories (RQ3).

5.1. Differences between users and non-users

Our analysis revealed group differences between users and non-users of social media for professional purposes across demographic, structural, and motivational characteristics (see Table 2). The sample (N = 147) consisted of 81 non-users (55.1%) and 66 users (44.9%). Significant associations were observed for gender and social media account ownership. Among male participants, the majority (75.9%) reported not using social media professionally, whereas female participants were evenly distributed between users and non-users. This yielded a significant group difference (Cramer's $V = .207$, $p < .05$). With regard to account ownership, all users reported having at least one social media

Table 2
Group differences in demographics and social media account based on social media use.

Variable		N	Non-Users (N = 81)	Users (N = 66)	Cramer's V
			%	%	
Gender	Male	29	75.9	24.1	.207*
	Female	118	50.0	50.0	
Experience	1st/2nd sem.	53	49.0	51.0	.116
	3rd/4th sem.	82	59.8	40.2	
	5th/6th sem.	7	57.1	42.9	
	>6th sem.	5	40.0	60.0	
Educational Level	Primary	61	45.9	54.1	.156
	Secondary	86	61.6	38.4	
Social media account	No	7	100	0	.202*
	Yes	140	52.9	47.1	

Note. *$p < .05$, **$p < .01$, ***$p < .001$.

account. In contrast, seven non-users (8.6%) indicated that they did not maintain any social media account, including for non-professional purposes, resulting in a significant difference (Cramer's $V = .202$, $p < .05$). No statistically significant differences were found for semesters of experience or intended school level, indicating that both users and non-users were represented across all stages of study and educational tracks.

To test the combined influence of social media use on the three dependent variables (motivation, relevance, skill), a MANOVA was performed. Results revealed a significant multivariate effect of social media use (Wilks' $\Lambda = .233$, $F(3, 145) = 13.54$, $p < .001$, partial $\eta^2 = .233$). Following common conventions, values of partial η^2 can be interpreted as small (.01), medium (.06), and large effects (.14) (Richardson, 2011). This indicates that, taken together, motivation, perceived relevance, and self-assessed skill significantly differed between users and non-users.

One-way ANOVAs were conducted to examine differences in motivation, perceived relevance, and self-assessed skill (see Table 3). Users consistently reported higher mean scores compared to non-users on all three measures. Motivation showed the largest difference between groups ($F(1, 145) = 38.1$, $p < .001$, $\eta^2 = .25$), with users indicating greater motivation to use social media professionally. Perceived relevance also differed significantly ($F(1, 145) = 32.4$, $p < .001$, $\eta^2 = .20$), with users rating social media as more valuable for their professional development. For self-assessed skill, users again reported significantly higher scores ($F(1,145) = 15.7$, $p < .001$, $\eta^2 = .12$). These findings indicate medium-to-large effect sizes across all three measures, with motivation showing the strongest effect.

5.2. Reported Reasons for not using social media professionally

Among non-users ($N = 81$), qualitative responses indicated a variety of reasons for not engaging with social media for professional purposes (see Table 4). The most frequently cited reasons were the desire to separate professional and private life ("Not interested, [and I] don't want to integrate my professional life too much into my private life") and the perception that social media added no professional value ("I haven't found a good platform that helps me get ahead"). Other categories included exclusive private use ("It is a private profile for me, where I share private content"), lack of prior professional engagement without a specific reason ("The opportunity has not yet arisen"), and limited knowledge about professional use cases ("I don't know its function and purpose yet"). Less frequent responses involved concerns about exposure, resource constraints, and data privacy or legal issues ("For data protection reasons"). A small proportion of responses were classified as unclear or off-topic and are not included in Table 4 categories.

5.3. Differences within the non-user group

Separate one-way MANOVAs were conducted for each stated reason of non-use to test whether groups of non-users differed in their levels of motivation, perceived relevance, or self-assessed skill. In other words, we examined whether the three dependent variables taken together varied as a function of the different reasons for not using social media professionally. None of these analyses yielded statistically significant overall differences between the groups. Nevertheless, some reason categories were associated with small to medium effect sizes (see Table 5), suggesting that specific reasons for non-use may be linked to subtle variations in motivation, perceived relevance, and skill, even if these differences did not reach conventional significance levels.

Table 3
Group differences in motivation, relevance and skill based on social media use.

Construct	Non-Users	Users	*Test statistic*	η^2
	M (SD)	*M (SD)*	*F (1, 145)*	
Motivation	2.26 (.82)	3.02 (.65)	38.1	.25***
Relevance	2.81 (.74)	3.41 (.50)	32.4	.20***
Skill	2.98 (.8)	3.44 (.56)	15.7	.12***

Note. *p < .05, **p < .01, ***p < .001.

Table 4
Percentage of Non-Users (N = 81) who mentioned each category.

Category	%
Separation of professional and private life	24.4
No added professional value	23.2
Exclusively private use	13.4
No prior use without specific reason	12.2
Lack of knowledge about professionalization opportunities	11.0
Desire to protect oneself or students from social media	9.8
Resources (technical barriers or time constraints)	7.3
Concerns about data privacy and legal issues	6.1

Table 5
Results for MANOVAs with motivation, perceived relevance and self-assessed skill in non-users (N = 81).

Category of Reasons for Non-Usage	Wilks' Λ	F	p	η^2
Separation of professional and private life	.913	2.43	.071	.087
No added value for school	.984	.42	.738	.016
Resources (technical barriers or lack of time)	.927	2.02	.118	.073
Exclusively private use	.966	.91	.442	.034
Lack of knowledge about professionalization opportunities	.943	1.56	.205	.057
No prior use without specific reason	.947	1.44	.238	.053
Desire to protect oneself or students from social media	.949	1.38	.256	.051
Concerns about data privacy and legal issues	.982	.44	.726	.017

6. Discussion

This study examined pre-service teachers' professional use and non-use of social media through the lens of the WST framework. The results provide insights into the individual and structural factors that contribute to social media avoidance, particularly in the context of informal, self-directed TPD. The discussion that follows is structured around three central dimensions: motivation and perceived relevance, self-assessed skill and infrastructural conditions, and the complexity of non-use. The qualitative categories complement the quantitative WST findings by clarifying why non-use occurs. For example, categories reflecting value align with *Will*; categories reflecting lack of knowledge align with *Skill*; categories reflecting access or institutional resources align with *Tool*.

6.1. Motivation and perceived relevance as core drivers

Our data showed that motivation and perceived relevance, the Will component of the WST framework, were the strongest factors associated with professional social media use, which reflects prior research that digital engagement is influenced by teachers' beliefs, attitudes, and interests (Knezek & Christensen, 2016). Our results showed that pre-service teachers who are more motivated regarding social media use and perceive it as valuable for their professional activities are significantly more likely to engage with it in meaningful ways. Similarly, Carpenter et al. (2020) reported that perceived usefulness and professional alignment are strong predictors of teacher Instagram engagement. Teachers are more likely to engage with social media professionally when it directly supports their teaching goals, improves collaboration, or provides teaching materials and emotional support. Without these clear connections to teaching practice or professional role, non-users see little reason to invest time or effort, given competing demands.

Several of our qualitative findings provide further nuance to these findings. Participants who cited the separation of professional and

private life as their reason for non-use showed a tendency toward lower motivation scores. This suggests that concerns about boundary management and self-disclosure function not only as ethical or practical considerations but also as emotional and motivational deterrents to participation, as has been shown before by Kimmons and Veletsianos (2014), as well as Staudt Willet (2024). Relatedly, other teachers reported avoiding professional social media to protect their creativity, privacy, or work-life balance (Noakes & Hook, 2021), underscoring the identity work required to navigate public digital spaces.

In contrast, participants who had never used social media professionally but did not specify a reason showed marginally lower scores in perceived relevance. This points to a group whose disengagement may stem from disinterest or lack of exposure rather than from explicit rejection. For these individuals, increasing the visibility of successful, low-threshold examples of purposeful use (see Carpenter et al., 2023) could help promote re-evaluation of social media's professional value.

6.2. Gender and social media use

An exploratory layer of explanation emerges when considering gender. Given the limited number of male participants, these observations should be viewed as tentative rather than conclusive. Male participants in our sample were more frequently non-users than their female peers. This pattern may reflect broader differences in how gendered norms shape professional identity and engagement in social media. One possible explanation, consistent with prior research, is that male teachers may prefer to keep social media use private or separate from professional domains (Davis & Yi, 2022). Additionally, previous research has shown that female teachers are often more active in education-related social media spaces, particularly in contexts where emotional support and collaborative dialogue are central (Kerr & Schmeichel, 2018). Similarly, a comparative study of Facebook Group usage found that female teachers more frequently used social media for sharing pedagogical ideas and emotional support, while male teachers were more likely to act as passive observers or use it for information-seeking only (Patahuddin et al., 2022). Furthermore, research indicates that visible teacher-influencers on social media are often female and White, which may shape perceptions of inclusion or representation in these spaces (Sun et al., 2025). In this light, male pre-service teachers may perceive fewer identity-aligned role models or may feel less socially legitimized in using social media for professional expression.

6.3. Skill-related and infrastructural factors

While motivational aspects were more decisive, differences in *perceived skill* also played a significant role, aligning with the *Skill* component of the WST framework. Compared to *Will*, the gap between users and non-users was smaller but still evident. Teachers may acquire general social media skills through personal use, but this does not necessarily translate into confidence for professional application. Social media self-efficacy (i.e., confidence in one's ability to use social media for professional purposes) may be a crucial precursor to voluntary and effective use. This is consistent with research showing that digital self-efficacy enables teachers to take ownership of their learning, contribute to online communities, and experiment with professional identity formation (Lantz-Andersson et al., 2018). Even among current users, some begin as passive consumers and only transition to more active roles if their confidence grows (Prestridge, 2019; Woltran et al., 2022).

Beyond self-perception, some non-users explicitly reported skill-related constraints. A smaller but notable subgroup (11.0%) indicated that they lacked knowledge of how social media could be used professionally. This suggests that digital literacy remains a barrier, particularly when it comes to navigating professional networks, searching for relevant content, or even contributing original content (Seraji et al., 2023). Importantly, current teacher education programs typically offer few structured opportunities to develop these competencies in informal, self-regulated learning environments. Structured opportunities could include guided activities such as social media diaries and fasts that help pre-service teachers reflect on their habits and explore professional uses of social media platforms (Damico & Krutka, 2018). Equally important are critical social media literacy frameworks that scaffold students' understanding of participation, access, and online risks, encouraging them to evaluate not only how but *whether* to engage in professional networks (Nagle, 2018).

In addition, the findings show that *account ownership* was significantly associated with use. While having an account is a basic prerequisite for any social media activity, the presence of many non-users who do have accounts highlights that access alone is insufficient. This finding supports the integrated logic of the WST framework, which emphasizes that *Will*, *Skill*, and *Tool* must converge to enable meaningful digital participation (Woltran et al., 2022). Infrastructure and access, therefore, are necessary but not sufficient conditions for engagement.

While our data show *Tool* played a smaller role, emerging platform changes suggest that there are indications that this dimension may become more salient in the future. Although these developments were not part of our study, it can be added that, until recently, most social media tools have been freely accessible, which likely contributed to *Tool* being less salient for explaining use. However, recent platform-level developments suggest that access conditions are shifting. For instance, several platforms have introduced tiered memberships and paid verification systems, such as X/Twitter Blue, which reconfigure visibility and functionality for non-paying users (Mirer & Humayun, 2024; Volkmer & Meißner, 2024). Algorithmic audits have also shown that content visibility is strongly shaped by recommendation systems (Corsi, 2024), which may disproportionately benefit paid or promoted content. Moreover, platform bans or restrictions have emerged in some jurisdictions as part of broader regulatory debates (McAlister et al., 2024), and API access for researchers and developers has been severely curtailed or monetized, as seen in Twitter/X's policy changes (Blakey, 2024). These developments suggest that infrastructural access can no longer be taken for granted, and that future pre-service teachers may face new constraints in terms of which tools are available, visible, or useable in professional contexts. As such, the *Tool* dimension may warrant greater theoretical and empirical attention moving forward.

6.4. Complexity of non-use

Together, these results reinforce that non-use is not a singular or uniform phenomenon. While motivational and skill-related variables in our study provide strong statistical explanations, the qualitative findings point to multiple, overlapping rationales. Our qualitative data revealed that the most frequently cited reason for non-use was the participants' desire to maintain boundaries between their personal and professional lives. This aligns with previous work on identity tensions in digital environments, where teachers must negotiate professional expectations with the semi-public, performative nature of online platforms (Robson, 2018; Staudt Willet, 2024; Thunman & Persson, 2018). The phenomenon of *context collapse,* when distinct social spheres converge unpredictably in online settings, further complicates digital identity management for teachers (Carpenter & Harvey, 2020). At the same time, participants in other research have reported that the blending of personal and professional identities can be important for teachers to build rapport and establish social ties online (e.g., Carpenter et al., 2020), highlighting how the same dynamics that discourage use for some individuals may have the opposite effect for others.

Skepticism about the professional value of social media was the second most common reason for non-use, which speaks directly to the issue of perceived relevance. Teachers who do not associate social media with pedagogical utility or institutional support are less likely to explore these platforms (Carpenter & Harvey, 2020). Concerns about

distraction, superficiality, and the absence of formal recognition reinforce such views. This is echoed in prior studies where teachers reported doubts about the depth of online discourse and the value of social media-based learning (Fox & Bird, 2017). It is important to view non-use as an active and potentially reflective stance. Some teachers report intentionally avoiding professional social media to protect their creativity, privacy, or work-life balance (Willis et al., 2023). Others report negative prior experiences or burnout from performance pressure online, leading to disengagement (Fox & Bird, 2017). These narratives suggest that professional social media use is not suitable for all teachers and should not be treated as a universal expectation.

Although our analyses did not reveal statistically significant differences in motivation, perceived relevance and self-assessed skill across all non-use reasons, several descriptive patterns emerged that deserve consideration. Attitudinal and skill differences appear to be distributed across multiple categories, suggesting that non-use cannot be reduced to a single explanation. For some, disengagement reflects personal preferences or protective boundaries; for others, it results from lack of exposure, knowledge, or support. These findings underscore the importance of using multidimensional frameworks like WST to interpret non-use as a layered, context-sensitive phenomenon shaped by both internal dispositions and structural conditions.

6.5. Limitations

The results obtained from this study need to be interpreted in light of several methodological limitations. First, the study focuses exclusively on pre-service teachers from a German university, which may limit the generalizability of findings to in-service teachers or to other national and institutional contexts. Additionally, the reliance on self-report data introduces the potential for social desirability bias, particularly in variables such as motivation and self-assessed skill. However, the anonymity of the survey likely reduced this risk, as participants could respond without consequences for their studies or professional standing.

A further limitation lies in the cross-sectional design, which captures participants' beliefs and experiences at a single point in time. As such, the findings cannot address changes in motivation, skills, or usage patterns over time, nor establish causal relationships. Moreover, the study did not include behavioral data on actual social media use. This limits the ability to validate participants' self-perceptions against their real engagement, which is particularly relevant given the complex and often fragmented nature of digital practices. Finally, the small number of male participants in the sample restricts the strength of any gender-based conclusions.

6.6. Implications for practice and research

Although the present study is situated in a German university context, the barriers reported by non-users map onto categories documented across recent international research on teachers' social media engagement (Dille & Røkenes, 2021; Patahuddin et al., 2022; Seraji et al., 2023). At the same time, the salience of these barriers is likely shaped by national and institutional conditions (e.g., data protection norms, professional conduct expectations, and platform cultures). Accordingly, teacher education programs in different contexts should interpret WST-related barriers as mechanisms that may generalize, while tailoring support (e.g., privacy guidance, low-threshold participation formats, and critical digital professionalism) to local policy and professional norms.

The findings from this study point to clear entry points for designing more effective TPD strategies. However, given the localized and demographically specific sample, these strategies are most applicable to pre-service teacher education programs similar to the context of a German university. There is a need to address motivational and competence-related barriers to online TPD early in the education process. Introducing optional, guided experiences with professional social media use, such as observing or curating content rather than posting, can lower the threshold for engagement (Carpenter et al., 2023; Prestridge, 2019). Explicit reflection on digital identity, boundary management, and value alignment may help normalize a range of attitudes, including ambivalence (Carpenter et al., 2019; Damico & Krutka, 2018; Willis et al., 2023). By showcasing authentic examples from diverse teaching contexts, teacher education programs can foster informed, rather than performative, digital professionalism (Benko et al., 2016; Carpenter et al., 2023).

For schools and teacher training institutions, supporting differentiated engagement requires development formats that acknowledge teachers' varying motivation, perceived relevance, and competences (Woltran et al., 2022). Many teachers who refrain from professional social media use do so for well-considered reasons, such as protecting their mental health, maintaining privacy boundaries, or navigating institutional expectations (Carpenter & Harvey, 2019; Fox & Bird, 2017). Providing training on privacy, content moderation, and digital ethics, along with offering protected or semi-public collaborative spaces, can promote both agency and safety in digital participation (Nagle, 2018; Willis et al., 2023). Finally, this study offers theoretical implications for future research. While the WST framework remains a useful conceptualization for understanding teachers' digital behaviors, our findings suggest that non-use may also be shaped by dimensions not fully captured in the original framework. Two such factors are particularly salient: perceived risk, referring to concerns about exposure, reputational harm, or institutional misalignment (Carpenter & Harvey, 2019); and identity tension, describing the discomfort some teachers experience when their personal and professional selves intersect awkwardly on social media platforms (Kimmons & Veletsianos, 2014; Staudt Willet, 2024; Willis et al., 2023). These factors may operate as moderators or mediators within WST configurations and warrant further conceptual integration.

To deepen understanding of the diversity and complexity of non-use, future research should pursue more differentiated study designs using data triangulation. In particular, qualitative methods such as interviews or focus groups could yield further information on how teachers experience ambivalence, discomfort, or resistance toward professional social media use. This would allow researchers to explore nuanced, situational motivations for disengagement that may not be easily captured through surveys alone. Longitudinal designs could also trace how *Will*, *Skill*, and *Tool* dimensions evolve over time and in response to institutional, personal, or platform changes. Finally, further conceptual work is needed to examine how emerging factors, such as institutional culture, digital fatigue, or policy uncertainty, interact with WST and whether an expanded model is needed to adequately describe intentional or context-dependent disengagement from digital spaces.

This study provides a deeper look into pre-service teachers' social media use and non-use for professional development. While the findings offer insight into key motivational, skill-related, and contextual factors, they should not be generalized to in-service teachers or international populations without caution. Educational policies, platform availability, and social media norms differ across regions, and pre-service teachers' needs and experiences may diverge significantly from those of practicing educators. As such, the implications of our findings are primarily relevant to similar teacher education contexts and should be interpreted within these boundaries. In doing so, the study contributes to a more nuanced understanding of professional learning in the digital age.

CRediT authorship contribution statement

Hermann Dzingel: Writing – original draft, Project administration, Methodology, Formal analysis, Data curation, Conceptualization. **André Meyer:** Writing – review & editing, Supervision, Methodology, Data curation, Conceptualization. **Eric Richter:** Writing – review & editing, Validation, Supervision, Conceptualization. **Jeffrey P. Carpenter:** Writing – review & editing. **Dirk Richter:** Writing – review & editing,

Validation, Supervision, Methodology, Conceptualization.

Declaration of competing interest

The authors declare the following financial interests/personal relationships which may be considered as potential competing interests: Hermann Dzingel reports financial support was provided by German Federal Ministry of Education And Research as part of the project 'Schule macht stark' (School Makes Strong – SchuMaS; Grant Number 01PR2101I). If there are other authors, they declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.tate.2026.105498.

Data availability

The data is available at request.

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