Virtual Learning Communities Mediated through Instagram: Pre-Teachers as Creators of Environments through Visual Narratives

Tania Martínez-Gil
Ph. D, Universitat de Barcelona, Spain, *tania.martinezgil@ub.edu*

Raquel Gil-Fernández
Ph.D., Universidad Internacional de La Rioja, Spain, *raquel.gilfernandez@unir.net*

Diego Calderón-Garrido
Ph. D., Serra Húnter Fellow, Universitat de Barcelona, Spain, *dcalderon@ub.edu*

Carolina Martín-Piñol
Ph. D., Universitat de Barcelona, Spain, *carolinamartin@ub.edu*

Scientific literature shows that from an educational perspective, one of the constraints of using social media is that trainee teachers tend to refrain from assuming an active role in any educational context, despite themselves being significant consumers of non-professional content on social media This study aims to analyse the perception of students of the Master's Degree in Teacher Training for Compulsory Secondary Education and Baccalaureate, Vocational Training and Language Teaching at a University in Spain on an experience mediated by Instagram in order to determine factors related to motivation, creativity and intention to use it in the future. The methodology employed implemented an experience based on a four-phase sequence. A questionnaire was administered as a pre-test, and post-test and correlations were carried out using Spearman's statistic, the statistical difference with Mann-Whitney and multiple linear regression with the input method. This allowed for the influence of their role as creators of visual narratives on their future practice as teachers to be analysed. In terms of the results, the most notable were the marks for awareness of the process carried out, views on the usefulness of the activity and opinions on motivation. The use of Instagram and other social networks for future activities was significantly valued, considering the methodology used allowed creativity to flourish. This is a relevant indicator and demonstrates a significant gap in educational studies regarding future secondary education teachers' trends and social media profiles. Although they are familiar with these networks, the results show that they have yet to be incorporated into their professional world.

Keywords: instagram, social media, virtual communities, secondary, visual narratives

INTRODUCTION

It is undeniable that the dialogue between social media and teaching-learning strategies provides an excellent opportunity for creating environments in which Digital Teaching Competence plays a leading role in shaping the Digital Agency necessary for the professional performance of future teachers, understood as technical capacity led by sound judgement, in a world increasingly governed by technology (Carrera et al., 2019; Castañeda et al., 2018; Castañeda, 2019).

Launched in 2010, Instagram is a social network based on visuals that have established itself as a platform where formal, non-formal and informal education meet. It is a tool commonly used by the scientific and educational community (Gil-Fernández & Calderón-Garrido, 2021a). The fact that a network centre on the presentation of imagery significantly ties users to their expression of identity (Sakr, 2019). For authors such as Carpenter (2020), the visual nature of Instagram sets it apart. It works in its favour for specific ends, compared with other social networks that are more text-based and rely on greater use of hyperlinks, and it is also highly versatile in terms of usability. For Shelton & Archambault (2018), the use of this kind of "affinity space" may be somewhat motivated by reasons relating to fostering educational entrepreneurship (Carpenter et al., 2018). In Instagram's case, the possibility of uploading shared narrative creations conforms with the current perspective on education, which argues that learning arises from meaningful personal and social practice (Junior, 2020).

The characteristics above, together with the fact that it is a network widely used in the educational world and by young people in general (Romero-Rodríguez et al., 2020), justify the need to develop, analyse and evaluate experiences based on this network. However, there is a research gap in this regard, as shown by the work of Gil-Fernández & Calderón-Garrido (2021a): 160 articles on the use of social networks in education were analysed, and only two of them focused on Instagram as a vehicular network. These issues explain the relevance of undertaking research such as the one presented here and its novelty.

One of the significant limitations of the educational use of social media repeatedly identified by the scientific literature is that, although trainee teachers are usually major consumers, they rarely take an active role, thus losing important intellectual, social, and professional capital; furthermore, those training them sometimes lack the skills to guide them in this regard (Choi & Behm-Morawitz, 2017; Gil-Fernández & Calderón-Garrido, 2021b).

This study addresses future secondary school teachers' perceptions about using Instagram as a vehicle for structuring learning environments, and the usefulness of the platform for facilitating teaching and learning activities in which students work assumes particular importance. The implications of subjecting future teachers to immersive practice of this nature are analysed through a case study.

With this in mind, we have designed a study with the overall objective of discovering and analysing the perception of students specialising in Geography and History as part of the master's degree in Teacher Training in Obligatory Secondary and Upper

Secondary School Education, Vocational Training and Languages at a university in Catalonia (Spain) about an educational proposal carried out through Instagram, and the influence this has on their future intention to use this and other social networks in their teaching practice.

Theoretical Framework

Social media is a part of everyday life on every level. In this regard, it is clear that over the years, there has been a paradigm shift caused by the emergence of its presence in the educational sphere (Amer & Amer, 2018). Over the years, it has become a catalyst for change to adapt to an educational setting that must be open and flexible (McLoughlin & Lee, 2010). Thus, commercial social networks are increasingly being used in formal learning environments, even though they have not been specifically designed for educational purposes. Some platforms, such as Facebook and Twitter, have received a much attention from the scientific literature. In contrast, others, such as Instagram, have yet to be studied as part of educational research, despite being widely used by university students (Carpenter et al., 2020; Kolmykova et al., 2021; Manca, 2020). In contrast, others, such as Instagram, have barely been studied as part of educational research, despite being widely used by university students (Carpenter et al., 2020; Kolmykova et al., 2021; Manca, 2020).

Interaction in the educational sphere through Instagram: confluences between formal, non-formal and informal settings

Instagram, created in October 2010, is one of the most widely used networks for sharing photos, videos, and stories asynchronously (Hussain et al., 2018). It allows users to tag content with searchable hashtags and provides for successful integration with other platforms such as Facebook, Twitter, or Flickr (Manca, 2020). Instagram creatively encourages the expression of ideas and allows for the creation of contextually relevant content (Akhiar, Mydin & Kasuma, 2017).

The main motives for using this network are linked to how profiles are displayed, the flexibility in creating the profile, and social interaction (Huang & Su, 2018; Romero et al., 2019). Instagram posts tend to show carefully selected, positive images, while stories may be more informal and less controlled (Hong et al., 2020). In the opinion of authors such as Manca (2020), the lack of reciprocity required from the user to view updates makes Instagram a minimally invasive network that maintains privacy settings and is convenient for shaping educational experiences, compared to other networks with other features, such as WhatsApp.

Instagram is a social network that has adapted its features particularly well for mobile devices (Manca, 2020), despite not being a native platform for them, making it attractive to learners who often use social media and giving them a sense of mobility, latency of use and familiarity (Kolmykova et al,. 2021; Romero, 2021). Using mobile phones in teaching-learning processes has become an accepted practice that has proven its effectiveness in numerous experiments and studies (for example, Ko, 2019; Ooi et al., 2018; Skar, 2020; Sung et al., 2020; Wickramanayake & Jika, 2018).

In sum, social media and those frequently used via mobile phones generate strategies that increase motivation in students, even those who show reluctance in formal online contexts. To Scott (2018), integrating this type of experience into their informal daily use makes them more motivated, which is why this author calls it "transformative practices".

In Social Sciences, Instagram can provide interesting experiences that connect the scientific community and students, connecting informal contexts with formal contexts, and facilitating dialogue between them. The case of museum organizations can be used as a paradigm, as researchers, curators and staff sometimes use this network to reach out to people receiving formal education (Brown-Jarreau et al., 2019), offering them an enhanced experience. Authors such as Castellanos et al. (2017) warn that the social interaction that takes place in this type of practice, in which formal, non-formal and informal converge, produces more reluctance in instructors than in students, as teachers perceive the feeling that they cannot ultimately "control" these interactions.

Narratives and affinity spaces as enablers of skills and competences

Using narratives of any kind in the classroom improves students' social intelligence (Junaidi et al., 2022). Authors such as Junior (2020) hold that the narratives created on Instagram as a personal learning network allows for certain benefits for the narrators themselves, such as exploring multimodality, allowing interaction with cultural artefacts, and achieving proper interconnectivity.

Affinity spaces have been defined by Carpenter et al. (2020) in the following way: "Affinity spaces are online and/or offline locations where people convene due to a shared interest or endeavor. This common interest or endeavor supersedes distinctions such as age or gender that might shape users' interactions in other spaces" (p. 2). The authors use this concept to define the fluid and diverse nature of participation on Instagram, which fuels the proper configuration of these spaces. Kolmykova et al. (2021) focus on studying the role of Instagram in the representation and sharing of social capital. Once again, they agree on the power emanating from its visual aesthetics and its user-friendly, attractive interface, which are beneficial elements when it comes to sharing such social capital. The students in their study population showed a high level of commitment to generating social capital and improved their information literacy while also expanding their personal and professional competencies.

The systematic review by López-Solé et al. (2018) on the importance of establishing social capital in education through networks showed the importance of exploiting the use of social networks and experiences based on them among teachers and future teachers. They concluded that the interactions between personal and formal settings give rise to personal relationships that nurture users' social capital.

Perafaunou et al. (2021) studied Instagram's role in improving students' digital skills and competencies. They compared the use of YouTube, Facebook, and Instagram. They concluded that the general use of Facebook and Instagram has no impact on students' digital skills, unlike YouTube, which boosts them more significantly. It is essential to

remember that the authors here refer to general use instead of educational use in particular.

Fernández et al. (2021) analysed how to improve digital teaching competence in trainee teachers with proposals mediated through Instagram and Visual Thinking, enabling future teachers to develop the holistic educational approach necessary for performing their role. They conclude that Instagram is an ideal vehicle for developing visual skills and abilities. Carpenter (2020), in observing the uses of and teachers' motivations for using Instagram, suggests incorporating the use of the network in initial teacher training programmes, to provide future teachers with the resources that would otherwise not be available to them; and to learn to assess the content to determine its quality heuristically. Alkhayat et al. (2020) explored the intention to use of social media by future teachers of Early Childhood education and revealed that learners preferred Instagram for improving their learning, communicating with parents, and sharing classroom activities.

Critical capacity and good practices conveyed by Instagram and other social media in university students

Many studies have reflected on the capacity of social networks to awaken critical competence in teaching, as well as on the importance of critical literacy (Gil-Fernández & León-Gómez, 2016; Akayoglu et al., 2018; Greene, 2017; McCarthy, 2017; Nagle (2018); Nochumson (2020): Kerr & Schmeichel, 2018; Santiesteban et al., 2020; Sutiani, 2021).

In this regard, university students' critical capacity and how this may be conveyed and developed through Instagram has also been a topic of interest for authors such as Sakr (2019). This author reflected on a project in which students engaged daily with experiences related to abstract concepts—from the perspective of critical pedagogy—. However, the results showed that the students' criticality was held back by the idea that they had to portray the relevant concepts unambiguously. As a result, the author highlighted the need to provide additional support to learners regarding the use of visuals offered by Instagram to connect the abstract with every day successfully.

Gómez et al. (2021) assessed educational content—geared towards future teachers—that was shared in Spanish among an Ibero-American community, which exchanges experiences and good practices on Instagram. They concluded that prosumers in education use Instagram to consume materials and resources from producers, and that there is a highly positive influence on creating environments. Romero et al. (2021) investigated the Instagram habits of a group of future teachers, concluding that the network was primarily used for entertainment and sharing one's own image in the form of selfies; that some students showed evidence of behaviour connected with a risk of abusive use (as was also concluded in the study of Jeri-Yabar et al., 2019) and that; as a result, educational policies should be directed towards implementing good practice on social media.

In line with the previous discussion, other authors, such as Ganjoo et al. (2021), have explored the user experience of undergraduate and postgraduate students, leading them to establish a code of good practice for using Instagram in virtual learning environments,

which includes following the guidelines of institutions mediated by communications offices or other similar bodies; to work out the ideal rate of posting, and to monitor the relevance of posts as well as feedback on posts.

METHOD

Based on this theoretical foundation, the following research question has been formulated to establish three hypotheses:

R.Q. Are narratives mediated through Instagram effective in fostering thriving virtual communities?

H1. The use of Instagram boosts students' sense of motivation and learning

H2. The usability and versatility of Instagram enhance the role of the producer and encourage future teachers' intention of use and sustainability over time

H3. Didactic strategies based on the creation of visual narratives achieve optimal learning outcomes

In line with the research question and hypotheses of the study, this overall objective is based on the following specific objectives: (SO1) To find out about the current use and characteristics of students' social media profiles; (SO2) To explore the monitoring of educational profiles created by future teachers on social media in formal and non-formal settings; (SO3) To find out the student's perception of a specific educational exercise mediated through Instagram in terms of motivation and creativity; (SO4) To analyse the influence that the role of students as creators of narratives on Instagram has on their future teaching practice.

Regarding the contextualisation of this research, the educational activity concerning which this study is designed to involve a didactic sequence organised in 4 phases corresponding to assessment for the subject *Innovación e investigación Educativa en Geografía, Historia e Historia del Arte* [Educational Innovation and Research in Geography, History and Art History] forming part of the master mentioned above's degree. This sequence revolved around the use of object-based primary sources for covering historical time and the use of social media through the creation of a virtual museum for the history classroom (hereinafter 'MuVAH', as per the acronym in Spanish) in line with the following working phases: 1. Selection of historical artifacts, 2. Research using protocol analysis, 3. Knowledge transfer in the MuVAH in the form of narratives and 4. Induction of cross-cutting historical themes, phase 3 is this study's primary focus. The social network Instagram was used to create the MuVAH since it allowed for the creation of a collaborative digital environment which, thanks to its features, facilitated the visual and creative transfer of their lessons through the editing of photos and video clips. To ensure the proper execution of the project, the students were given a guide on good practices to guarantee the adaptation of the educational material to the social network chosen, as indicated by Ganjoo et al. (2021).

For the analysis, an ad-hoc questionnaire was created by the authors of this research study following some patterns observed in the scientific literature. This was split into

two parts: the first was given out before the educational proposal was carried out, and the other was given out after, in a pre- and post-test format. In the first part, the students were asked about the use of social networks in general, Instagram, and their educational uses (OE1). Questions asked before the activity (OE1). Questions asked before the activity:

- Do you have an Instagram account?
- Do you follow accounts related to education?
- Do you post educational content on Instagram?
- Do you have accounts on other social networks?
- Do you follow and/or post educational content on other social networks?

The second part involved a series of indicators for assessing their own perceptions about the didactic proposal and the intention to use Instagram or other social networks for educational purposes in the future (OE2 and OE3). These were measured using a 6-level Likert scale. Questions asked after the activity:

- Did you find the activity useful?
- Did it allow you to develop your creativity more than with a non-digital methodology?
- Did you find it motivating?
- Has Instagram allowed you to convey historical content entertainingly and effectively?
- Has it made you to become aware of the learning process you have undergone?)
- Do you consider Instagram suitable for designing future activities?
- Will you use other social networks to design future activities?

The participants accessed the tool remotely through the platform Formsite. All participants signed a free and informed consent form. The tool demonstrated excellent internal reliability ($\alpha = .934$)

The sample consisted of 26 students (69.2% men) specialising in Geography and History as part of the master's degree in Teacher Training in Obligatory Secondary and Upper Secondary School Education, Vocational Training and Languages at the University of Barcelona (Spain), all having previously graduated with bachelor's degrees in History, Archaeology, Art History or Humanities. None of the sampled students had previously undertaken technological or digital-related studies. Four Catalonian universities offered this particular specialisation in the academic year 2021-2022, totalling 120 places, meaning the sample group represented 21.66% of the total number of students enrolled at the regional level. Their average age was 26.88 (SD = 6.276). None of the students sampled posted educational content on Instagram or any other social network.

The results were analysed using the statistical software SPSS, version 25. In addition to the usual mean and standard deviation calculations, correlation analysis was performed using Spearman's rank correlation, statistical comparison using Mann-Whitney's test, and multiple linear regression using the entry method.

FINDINGS AND DISCUSSIÓN

After completing the proposed activity, the results described in table 1 were reported. The most notable results were the marks for awareness of the process carried out, which is related to H1; views on the usefulness of the activity, which is related to H2; and opinions on motivation, related to H3. Related to Q.R., the prospect of carrying out future activities using Instagram and other social media was also highly valued.

On the other hand, table 1 also reflects a correlation observed between all the variables studied, except in the case of motivation, which only correlated with the usefulness of the activity. H1 and H2 are related to each other but not H3. Although the sample analysed found the activity motivating, this was not a determining factor.

Table 1
Results and correlations between the various indicators

	M (SD)	Correlations					
		1.	2.	3.	4.	5.	6.
1. Usefulness of the activity	4.31 (1.52)						
2. The activity allowed for the development of creativity more than a non-digital method would have	3.54 (1.56)	.643**					
3. Motivational activity	4.35 (1.60)	.454*	.225				
4. Instagram has made it possible to deliver historical content in an enjoyable and effective way	4.01 (1.65)	.721**	.699**	.309			
5. Awareness of the learning process	4.62 (1.39)	.573**	.457*	.334	.795**		
6. Instagram for creating future activities	3.27 (1.37)	.709**	.726**	.190	.572**	.470**	
7. Social networks for creating future activities	3.77 (1.39)	.776**	.776**	.251	.725**	.541**	.852**

$**p < .001$; $*< .005$

No gender-based statistical differences were observed for any indicators ($p > .005$ for all indicators).

Finally, regarding the R.Q., at any rate, an analysis of the results confirmed that the intention to use Instagram or other social networks to create future educational proposals was not derived from a view that the activity was motivating ($t = -.881$, $p = .389$ y $t = -.739$, $p = .468$ respectively), nor from a consideration of having delivered historical content ($t = -.927$, $p = .365$ y $t = -.234$, $p = .818$ respectively), nor from an awareness of the learning process ($t = -.723$, $p = .478$ y $t = .204$, $p = .841$ respectively). As table 2 indicates, this intention was based on opinions about the usefulness of the activity, as well as the consideration that the methodology used had allowed creativity to develop, which explained 62.9% of the variance for Instagram ($F_{2, 23} = 22.219$, $p < .001$) and 73.9% for other social networks ($F_{5, 23} = 36.42$, $p < .001$).

Table 2
Multiple regression analysis of predictors of the use of Instagram or other social networks to plan future activities

Predictors	Dependent variable	Adjusted R-squared	Non-standardised coefficients		Standardised coefficients	*t*	Sig.
			B	*SD*	Beta		
Usefulness of the activity	Instagram for future activities	.629	.398	.141	.440	2,828	= .010
Development of creativity			.407	.137	.461	2,966	= .007
Usefulness of the activity	Social media for future activities	.739	.460	.120	.500	3,835	< .001
Development of creativity			.419	.117	.468	3,586	= .002

However, the age-based analysis revealed that age did not correlate with the future use of Instagram (r_{ho} = - .303, p = .132) but it did with the use of other social networks (r_{ho} = - .389, p = .049).

DISCUSSION

Despite the optimistic view that most teachers have of students' use and knowledge of digital tools, there is a growing body of research and practice demonstrating the minimal use of these tools by this segment of the population for educational purposes (Firat & Köksal, 2017; Romero et al., 2021; Sinnema, 2020). In this sense, the participants themselves positively highlight the awareness of the process. Continuing with this idea, the data analysed in this research study is consistent with scientific literature (for example, Carpenter, 2020; Perafaunou et al., 2021), since although almost the entire sample analysed had personal accounts on Instagram and other social networks, none of them reported having made educational use of them, nor having published educational content or following accounts related to education, on neither a formal nor non-formal level. The results show that they are generally regular consumers of social media but that since they do not interact with educational accounts and thus do not take an active role regarding them, they lose significant potential in terms of intellectual, social, and professional capital (Loc et al., 2022).

This data is a relevant indicator and demonstrates a significant gap in the field of educational studies regarding the trends and social media profiles of future secondary education teachers as, although they are familiar with these networks; the results show that they have not been incorporated into their professional world so far (Gil-Fernández & Calderón-Garrido, 2021a). In this regard, the results of this study are particularly indicative, given that after implementing the MuVAH didactic activity and creating didactic content through visual narratives for the first time, they acknowledged the usefulness of the activity and its future application in the classroom. In fact, the participants highlighted the usefulness of the activity, and the motivation allowed them to develop creativity more than with a non-digital methodology. On the other hand,

students' recognition of experiences as quality promotes interaction with them and their intention to use them. (Calderón-Garrido & Gil-Fernández 2022a, Calderón-Garrido & Gil-Fernández 2022b; Schroeder et al., 2019; Vicneas & Ahmad Zamzuri, 2020). Although in this respect, predictors of use indicate that this approach increased their interest and motivation, as well as their intention to use what they learnt in their actual educational praxis, but also that their future implementation would be based on an essential replication of the learned model, without further expansion.

All this leads us to reflect, in line with the conclusions of studies in the field of technologies, such as the abovementioned study by Perafaunou et al. (2021), on the need to include these kinds of experiences in training programmes (Alizadeh, 2017). In this line, the results show that the intention to replicate the model does not lie in what has been learned from it but in the usefulness of the experience and the design of its methodology. Such practice should therefore be understood as integral to the curriculum and thus form part of the guidelines that lead them through their initial teacher training. Therefore, they should be understood as something other than sporadic activities in subjects related to innovation or digital educational technology since their versatility offers us ample possibility for connecting the students' real world with the world of the school classroom.

Furthermore, proper training in the use of social media within teacher education—at all levels—would, in turn, ensure awareness of good practices in the private and professional use of social media (Gil-Fernández & Calderón-Garrido, 2022b; Sinnema et al., 2020), in line with some of the Digital Competences for Educators set out in the European Framework (Redecker, C. 2020), as the students themselves show in their answers, highlighting that they allow content to be transmitted pleasantly and effectively. This also opens up a new area in training, as it, in turn, guarantees future teachers develop and acquire these cross-cutting competencies to be applied in their future professional performance (Carrera et al., 2019; Castañeda et al., 2018; Castañeda, 2019). Nevertheless, teachers of these courses sometimes do not have the skills to guide students in this regard (Choi & Behm-Morawitz, 2017; Gil-Fernández & Calderón-Garrido, 2022).

From this perspective, another concept to bear is that, in terms of creativity, there are contradictions between what the results of this study reflect, and the reality of the audio-visual narratives created by the students.

In this regard, it is noteworthy that their perceptions of what they created were highly positive. They highlighted the extensive creative possibilities of video clips. However, the reality shown by the instructors' feedback on their productions is that the arrangement of audio-visual content uploaded to Instagram via the MuVAH was very similar in each case and only conformed to the basic guidelines set out by the activity. Most of them repeated parts using the back or palm of their hands in one continuous, static shot. For speech, most of them used a voice-over narrating what was seen in the video. Only four participants of the total sample achieved high marks in this phase of the overall sequence, even though the overall average for the course was 7.6, given that

they met the activity objectives. Furthermore, the rigour of the content delivered through the narratives was highly satisfactory.

At this point, it can be argued that, despite living in a world where imagery plays a vital role in communicative messages, the rate of visual literacy at all educational levels must be increased, both in the reading and interpretation of imagery as well as in the creation of visual messages (Bosch et al., 2016). We must remember that, in this study, the social network used for uploading students' creations is predominantly visual. This distinctive feature of Instagram (Alkayat et al., 2020) sets it apart from other networks containing more text-based narratives but fuels the debate about whether current and future teachers are well-prepared, strictly speaking, for putting together visual narratives.

We have in mind a teaching method aimed at achieving better performance for this type of activity. There is a need to continue working on this language with essential elements such as visual syntax and the interpretation of moving images or their structural components (Acaso & Megías, 2017). We must remember that only through creation can the operating mechanisms of visual communication, in general, and audio-visual communication, in particular, be adequately understood (Bosch et al., 2016).

We need more teacher training and preparation to ensure successful interaction in the network-mediated learning process (Iredale et al., 2020; Torphy et al., 2020; Calderón-Garrido & Gil-Fernández 2022b). This research shows that, about the students' productions, there were repetitions in terms of both their structure and individual elements, revealing a lack of creativity; in fact, the results highlight the usefulness of this methodology to enhance it, especially in the use of social media in general.

On the other hand, the resulting products also need to gain knowledge of the audio-visual language they otherwise use frequently in other private spheres related to leisure, such as personal videos on TikTok or on Instagram itself (Alkhayat et al., 2020).

Finally, the same results show how it is valued as a motivating methodology that develops creativity. It should not be forgotten that it is based on visual language with the consequent work of the power of imagery: of what counts and what does not count, which is often as important as the most obvious of things; let us remember that, on a deeper level, invisible pedagogies are what we want to say, and can also be what we do not want to say (Acaso, 2018) and this is essential for this type of activity.

CONCLUSIONS

The results of this experiment have underlined the usefulness of the activity of creating a virtual museum on Instagram, as well as the positive opinion about the motivation it generated. It is also worth noting that the students highly valued the prospect of carrying out future activities via Instagram and especially other social networks. Although the activity was considered motivating, this was not a determining factor in the results obtained. Furthermore, a deeper analysis of the data obtained confirmed that the intention to use Instagram or other social networks to develop future teaching strategies was based on opinions about the usefulness of the MuVAH activity and the belief that the methodology used had allowed creativity to flourish.

Thus, through this particular experiment—the creation of the MuVAH on Instagram—it was possible to investigate the implications of subjecting future teachers to immersive practice of this nature and to connect it to the use they make of it.

Undoubtedly, through the monitoring of students for the activity, in addition to the results obtained from the questionnaires, the lack of knowledge and training in terms of the educational possibilities that social media has to offer in developing learning strategies has been confirmed, in line with what Carpenter (2020) had already underlined in previous studies.

This highlights the need to incorporate this network and others into initial teacher education programmes to provide future teachers with the skills and resources they would otherwise lack. Similarly, another implication for both training and practice in the classroom is the use of manuals or guides on good practice about creating different activities (Ganjoo et al., 2021), as the students stated that the activity opened new educational possibilities, but in the sense of replicating what had already been done through the activity proposed by the teacher.

This result reinforces the idea of low student creativity in the future creation of activities using social media. It is evident that the range of possibilities is immense. However, the main idea is to keep sight of the specific features of each network, as only by keeping track of these aspects can we guarantee their successful use in education. Each medium needs to be identified by its own individual message, and only in this way can we achieve the correct development of digital competencies for teachers among our students.

Regarding the limitations of the study, it must be underlined that it involved only a representative sample of the students of the specialisation of Geography and History of the master's degree in Teacher Training in Obligatory Secondary and Upper Secondary School Education, Vocational Training and Languages at regional level (26.6%). It would be interesting to replicate the study, even in other specialisations, to increase the number of participants sampled.

It should be noted that it is not the content of narratives that has been evaluated, but the actual creation of narratives in a collaborative virtual environment on social media. Therefore, the only requirement for participating in the study was to carry out a similar exercise and be currently studying for the master's degree in Teacher Training in Obligatory Secondary and Upper Secondary School Education, Vocational Training and Languages. Similarly, given that the content is published online, the MuVAH dashboard and the stories and highlights created could be analysed further in terms of creativity and learning.

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