

# Digital competence, social networks and apps in education: Views and beliefs of users of the Twitter virtual domain

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## ABSTRACT

This paper sets forth the preliminary results obtained from a study on the Twitter social networking service, where the main purpose was to learn, describe and analyse its users' opinions on social networks, digital competences and apps in education. The sample consisted of 1101 Twitter messages (761 tweets on digital competence, 275 on social networks and education and 83 on apps in education) posted by users from different countries, mainly Spain, Latin American countries and the USA. This qualitative study using NVivo software conveys the importance that users of the microblogging service Twitter attach to the training, mastery and control of digital competences associated with the use of different social media for good performance at the personal, social, economic, professional, academic and family levels. Additionally, it provides evidence of the permanent concern for the youngest to gain awareness and be trained in safe internet use that will protect them from the potential dangers of the online world.

## CCS CONCEPTS

• Human-centred computing → Ubiquitous and mobile computing • Social and professional topics → Computing education

## KEYWORDS

Social media and networks; Twitter; apps; virtual environments, learning; digital competence

## 1 INTRODUCTION

Nowadays and to a greater or lesser extent, most people have used social media and networks [15,27], the quality of these experiences being different according to the activities carried out and the intended purposes. The use of social networks such as Twitter for professional, educational or personal purposes (or a combination of all of them) fosters interaction among users with diverse and multidisciplinary experiences, laying the foundations for evolution towards greater professional consolidation achieved through collaborative work and ongoing reflection on the issues raised by the messages exchanged.

Twitter, perhaps because of its openness and the independence and freedom it affords its users (since it allows for asymmetrical relations), is often used as a professional learning network (PLN) where interests on specific topics can be brought together and used to create and apply interdisciplinary content, access new perspectives, ideas and experiences, and connect people with shared interests or needs [5,12,20,24,26,36]. Users of this type of social network are, likewise, clearly aware that their use can increase connectivity, but not necessarily the degree of collaboration among them.

According to [6], some of the main reasons why experts in education use Twitter are the possibilities of sharing and acquiring resources, collaborating with other educators, networking, participating in Twitter chats and finding emotional support. It could therefore be stated that:

Whole communities of research and practice regard Twitter as their meeting point: a distributed place where resources and ideas, and collaborative links are fostered. Twitter has also given voice to all sorts of causes and initiatives, while allowing people to be connected and informed, and even take active part in current events in real time, regardless of geographical location and time zone [7, p.2].

## 2 INFLUENCE OF PLE AND PLN ON MICROBLOGGING

Because the Internet is the main medium of propagation of the different globally interconnected networks, it could also be asserted that its being a mandatory point of passage has led social networking to become a mass phenomenon. Its pace, at least seemingly, keeps within the parameters that are deemed adequate thanks to the proper functioning of the body that keeps it alive: communication in all its forms and at its purest.

For this body (communication) to function properly, its heart (the Internet) must successfully pump blood to all the organs (social networks and media that make it up); but it must do so at a certain pressure (the one gradually imposed by changes and technological progress) and frequency (set by the rhythm marked by users themselves through regular participation in the social networks and media they are involved in).

As might be expected, given the relevance of this process, each beat involves intensive energy consumption to keep communication alive through the creation of a fitting web culture. The building, reconstruction and improvement of this culture should be possible through the skills, imagination, cunning and intelligence of the web's users [14]. Hence the need to personalize and individualize virtual learning environments (PLEs) [8,9,16, 17, 21, 31, 35], which, according to [1-2] are made up of the different tools, information sources, connections and activities that individuals use for learning on a daily basis. Many of these tools are based on what [2] refers to as *social software*, meaning "software that allows people to meet, connect or collaborate through the use of an IT network" (p.4).

This study addresses Twitter as a form of such social software, a microblogging service that allows its users to share short pieces of information of 140 characters or fewer with those who are interested in them and those who they find interesting [11]. Likewise, according to [3, quoted in 1, p.23], it allows users to put three basic cognitive processes into practice: reading, reflecting and sharing.

In this vein, Adell and Castañeda [1, p.23] believe that PLEs consist of three main elements: (1) reading tools and strategies: the information sources accessed offer the relevant information in the form of objects or artefacts (blogs, video channels, RSS feeds...); (2) tools and strategies for reflection: environments or services where the information can be transformed (sites where the user writes, comments, analyses, recreates and publishes); and (3) strategies and tools for relating: environments where users interact with other individuals from whom/with whom they can learn.

In short, it involves mechanisms to share and reflect as part of a community: the PLN or personal learning network. PLNs are understood as the tools, mental processes and activities that allow an individual to share, reflect on, discuss and reconstruct knowledge (and queries) with others, as well as the attitudes that foster and nurture such exchanges [30, p.717].

Therefore, users could be said to actively participate in certain social and personal learning networks such as Twitter, which is characterized by being a virtual service that provides multiple, almost infinite, possibilities of conveying all types of information thanks to the speed of access, accumulation and transmission it affords. This is leading to the building of new personal and collective identities in these virtual environments as spaces and events within the web [28].

Many professionals in the area of education use Twitter because of its informative nature, its smoothness and the immediacy with which information can be shared with and communicated to others. Thus, the publication of multimedia productions and recreations is made easier by the connectivity and ubiquity offered by the different mobile devices that individuals may use to communicate (mobile phone, iPad, laptops, tablets...) [15, 18].

Twitter allows anybody, whether registered or not, to read the tweets (messages) of other users by simply accessing the targeted user's profile and message record, provided it is public. Twitter's most relevant aspect is that the relationships it builds are asymmetrical, meaning that users may "follow" individuals or groups whose posted topics they find interesting by subscribing to their messages, but this does not guarantee that the targeted person or group will "follow" them, which, incidentally, seldom happens. When a two-way relationship becomes established, meaning that the "followed" person also "follows the follower", Twitter offers both users the chance to interact via private messages [13, 25]. The flow of messages that are shared and exchanged via Twitter is such that this microblogging service has become a learning community that includes an immense virtual library full of relevant information. Such information gradually becomes more comprehensive and transforms through the use of mobile technologies and *Social Learning*, [37, 39, 40], understood as communities of practice that not only explore already established contents, but also build knowledge [4, 10].

In sum, the ubiquity afforded by mobile devices that allow the possibility of being permanently connected, at any time and anywhere, is unquestionably determined by the feeling of living in a space and time where simultaneity and continuity are combined in every action we carry out as human beings. Therefore, these devices become, at least seemingly, essential for individuals to grow, reconstruct themselves or reinvent themselves using Web 2.0 digital tools in virtual and personal learning environments and networks [22], Twitter being one of them.

## 3 OBJECTIVES

The main objectives pursued in this study are to describe the opinions on social networks, digital competence and apps in education through the social network Twitter.

## 4 METHODOLOGY

### 4.1 Method

This study was carried out following a qualitative approach based on its participants' understanding of the phenomenon, paying special attention to their experiences, opinions and feelings [34]. Likewise, the fact that social networks are dynamic and under constant development and change due to interaction renders the description of such evolution especially interesting.

The analysis of the posting of social messages on Twitter was conducted by selecting profiles and accounts that fit in with the search criteria on digital competence, apps in education, and social networks and education.

The method used consisted of collecting documentation from social networks, namely Twitter, with the purpose of approaching part of the subjective scenario from the, in this case virtual, space where people interact [33].

The new technological tools provided by the Internet, such as social networks, blogs, video and music exchange platforms, etc. allow users to share, generate content, inform and communicate, which makes them essential components of research. They allow for autonomous learning, access to new information sources and active participation, so that users become both issuers and receivers of information [19]. These tools broaden the scope of the teaching-learning process to new areas [29] by allowing information to be exchanged in a prompt, comfortable, fast and easy way [19]. Likewise, since they are currently a basic and decisive form of socialization, guided education becomes essential.

### 4.2 Population and participants

The study is based on a judgmental or purposive sampling technique, since the goal was to outline different views on a same situation and to collect different opinions, feelings and experiences related to the topic [34]. The choice of Twitter is based on the fact that it allows access to a large number of comments, which were used to subsequently delimit the sample.

This study was conducted using 1101 tweets: 761 on digital competence, 257 on social and educational networks, and 83 on apps in education. The sample is made up of the discourse of users from different countries, most of them from Spain, the USA and Latin America.

The mentioned topics were traced, identifying websites with over 130,000 tweets in some cases and over 530,000 followers.

### 4.3 Data analysis

The procedure followed to analyse the data was as follows:

1. Exploration: message reading.

2. Data reduction: selection of topics and messages related to digital competence, apps and social networks in education.

Discursive representativeness was taken into account. The messages that best explained the phenomenon were selected and deemed sufficient when the sample reached discursive saturation and the messages were considered to provide rich, thorough and comprehensive information [34].

3. Data analysis using Nvivo 11 software: the words that showed up more frequently were consulted, eliminating "empty words", meaning those whose discursive weight was negligible; this was tested using word trees to visualize the signifiers in context. The software was subsequently used to run a cluster analysis according to word similarity using the Pearson correlation coefficient to link the tweet's content for each case and extract the relevant comments.

### 4.4 Results

- I. Social networks and education

With regard to the analysis of the opinions gathered from Twitter on the connection between social networks and education, attention should be paid, as displayed in [Figure 1](#), to the relevance attached to fear associated with the use of social networks by





aprende” (competence, digital, sense, improve, courses, empower you, fears, digital, world, master, prepare, information and learn; (ii) in relation to apps: educación, apps, móviles, ciencia, cultura, oportunidades, tecnología, gratis, crear, mapas, conceptuales, mentales y plataformas (education, apps, mobile/s, science, culture, opportunities, technology, free, create, conceptual maps, mental and platforms); and (iii) in terms of social networks: competencias, digitales, redes, sociales, mejorar, educación, cursos, capacitarte, digital, miedos, mundo, dominar, peparamos, información, aprendizaje, formación, jóvenes, gratis, aprende, empleo, herramienta, empleabilidad y consejos (competences, digital, networks, social, improve, education, courses, empower you, digital, fears, world, master, prepare, information, learning, training, young, free, learn, employment, tool, employability and advice).

The findings reveal the importance Twitter users attach to lifelong learning and to the management and discriminating and safe use of the information obtained from social media and networks, stressing the need to develop critical thinking so that such information and shared contents may be adequately selected, checking them for truthfulness, validity and current relevance with the purpose of identifying and rejecting any false information and contents, as well as potential hoaxes disseminated by certain users who take advantage of the virality afforded by social media and networks. The Twitter users assessed in this study are aware of the positive impact of shared information, contents, advertisements and resources on their learning, since they allow them to further pursue their interests, accomplish their goals and, in many cases, improve their personal and professional development. Nevertheless, they are also aware of the dangers involved in the use of these media and of the necessary precautions to avoid malicious networks and communities that may damage their digital identity and safety. This is why many of the tweets and *hashtags* posted are associated with the provision of advice on safe social networking, mainly intended for the young, and with discussion on whether social networks are “friends or foes” to education.

This concern is consistent with the results included in the Fundación Telefónica “Information Society Report 2016”, which states that:

[...] four out of five Internet users -80.3%- express serious concern about privacy (assessing it with a score of 7 or above on a 1 to 10 scale) and 87.9%, 2.7 percentage points more than one year ago, believe that it should be possible to find and erase their personal information from the Internet. The concept of personal information is understood in a broad sense and not only includes the most sensitive and personal data, but also any online activity. Thus, when asked what information they believe should be protected, 82.2% mention personal data, 77.9% pictures; 67.9% of the web users answer browsing history and 67% search history. [38, p.25]

It should be likewise noted that most of the Twitter users involved in this study see social networks and media as a tool that favours learning, lifelong training and employability. On the one hand, they increase the possibilities of contact between companies and workers or future workers; and, on the other hand, there is a growing trend towards the sharing of tools, resources and mobile applications that fosters ubiquitous and lifelong training in different areas such as language learning and practice, mathematics, dyslexia, spelling, production of concept maps, etc. Moreover, social media and networks are also regarded as a great tool for education, reflection and discussion [32].

[...] among users in the twenty to twenty-four age range, the percentage of internet users that uses instant messaging to communicate with colleagues for work purposes reaches 73.3%. Likewise, more than half of the users in this age range, 52.3% specifically, already use this channel to communicate with companies and businesses. This higher percentage of usage among the youngest population reveals the growth potential of this relationship model between users and companies for the coming years. It is also a global trend elsewhere in the world. For example, 65% of USA Internet users would also like to communicate with enterprises using instant messaging services. [38, p.25]

In short, we are still witnessing the unstoppable evolution of the knowledge and information society we live in, where people of all ages interact actively and on a constant basis with the possibilities offered by social media and networks, through which they access a large number of services and a wealth of digital content thanks to the global connectivity they afford, which has led to the development of new forms of relating at the social, professional, family, communication, information and leisure levels, and to new forms of interaction with learning.

## ACKNOWLEDGMENTS

This work was partially supported by the MINECO/FEDER. Financed by the Government of Spain's Ministry of Economic Affairs and Competitiveness. National Program for the Promotion of Excellent Scientific and Technical Research, National Subprogram for the Generation of Knowledge (Ref.: I+D+I EDU2015-67975-C3-3-P).

This work was partially supported by the Ministry of Economic Affairs and Competitiveness. National Program for the Promotion of Excellent Scientific and Technical Research, National Subprogram for the Generation of Knowledge, in the framework of the 2013-2016 National Plan for Scientific and Technical Research and Innovation (Ref.: I+D+I EDU2015-68718-REDT).

This work was partially supported by the Spanish Government Ministry of Economy and Competitiveness, DEFINES project (Ref.: I+D+I TIN2016-80172-R).

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