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The effectiveness of using edublogs as an instructional and motivating tool in the context of higher education

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The aim of this research is to study the impact of blogs on improving self-reported motivation and learning in a higher education context. A quasi-experimental study was carried out in a social science core unit of the Primary Education degree at the University of Murcia, Spain. The study involved two groups of student teachers, with a total of 101 participants, who created their own blogs as a framework for exchanging their views and sharing their ideas on a variety of contemporary issues related to social science teaching. Data were collected through pre- and post-tests to measure whether the expected changes had occurred as a result of using this digital information platform. The results indicate that the use of blogs helped students to develop their digital literacy, to enhance their social and civic skills, and increase their self-perceived motivation. It is therefore worth updating the current communication processes with regard to online learning with a view to promoting digital access to information and fostering a meaningful learning network through these web resources.

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Introduction

In recent decades, the potential of information and communication technologies to facilitate the exchange of information and networking with different people around the world has become increasingly evident (Marcelo-García et al. 2015). This has opened the door to new communicative practices that have increased interactivity, immediacy, and effective collaboration among worldwide internet users (Huang et al., 2009; Kuo et al., 2017). Blogs are a clear example of this global internet usage (Yang et al., 2016).

A blog, a contraction of “web log,” is a website used to publish regular information that may include diary entries, news, or hyperlinks to other websites, among others (Richardson, 2010). The entries in this web-based communication tool follow a reverse chronological order to put more emphasis on the most recent posts that appear at the top. This order helps to highlight current information that may be of particular interest to the blog readership.

Blogs emerged in the late 1990s as a new web publishing resource that made it possible to post information to be read online by non-computer experts who had no significant knowledge of HyperText Markup Language (HTML) programming. Some years later, thanks to the Web 2.0 (participatory and social web) framework, blogs not only enabled global communication but also promoted community participation in creating and managing content on the Internet, while enriching networking through collective collaborative practices (García et al., 2014). Thus, in recent years, most blogs have been interactive Web 2.0 meeting points that have allowed readers to network with a wide range of blog users from around the world, leaving online comments and sharing information with other social media sites such as Facebook, Twitter or Pinterest.

Paquet (2003) identifies five key features of blogs: personal editorship; a hyperlinked post structure; frequent updates; free public access to the content online; and archived postings. These key features are essential to creating a blog and keeping it updated and many scholars coincide that the easiest way to familiarise oneself with this online tool is through web hosting. Thus, once a suitable blog platform has been chosen, there are several easy steps in the process of creating a blog, such as creating an account, naming the blog, choosing a theme and a template, and writing and posting the first entries.

From an all-encompassing perspective, the blogosphere is the term used to refer to all blogs and their interconnections. Globally, millions of blogs have spread over the past decades across a wide range of sectors and connected communities (researchers, educators, journalists, online influencers and others). It has thus become an effective global publishing medium that spreads the word through the Internet and influences both public and individual opinion (Kramer and Kusurkar, 2017).

Apart from supporting good communication skills, blogs are motivational tools that serve as effective platforms for people to engage in collaborative online tasks. In particular, Liao et al. (2013) identify three types of motivation when blogging, namely utilitarian (i.e., perceived effectiveness), hedonic (i.e., perceived enjoyment) and social identity (i.e., group distinctiveness). In this study, we focus on students’ self-perceived utilitarian motivation when blogging in a higher education context.

In the field of education, blogs used for teaching and learning purposes, also called edublogs, have also gained some popularity and are gradually being used to promote learning through new Information and Communications Technologies (ICT) or e-learning (Chawinga, 2017). They have become a new and compelling visualisation tool, as they are not only effective in delivering content to students over the Internet but also encourage students to share and discuss ideas that help improve educational

outcomes (Poore, 2013). Their dual nature, either as an ICT tool or as a social learning network, boosts their innovation capacity to improve the quality of multimedia teaching and learning processes (Álvaro-Tordesillas et al., 2020). In addition, their user-friendly interface facilitates a quicker understanding of the main facets and functions to start blogging and accessing learning content and materials (Davis et al., 2019). Urbano and Villanueva (2012) distinguish different types of edublogs, according to several criteria such as authorship, content, level of education or addressees. They also classify blogs according to the specific academic purpose for which they are created, such as the management of teaching materials, the implementation of educational projects or online training evaluation, among other purposes. As stated by Conde-Caballero et al. (2019), the blog, as one of the most effective web resources, has great potential in this field. Indeed, there are many advantages that have been widely considered by the literature, which support their implementation due to their multiple benefits. We have selected some studies which have gained insight into the most relevant skills (e.g., digital, social, language skills) derived from its implementation for learning purposes (see Table 1).

In this study, we focus our attention on the impact of these web-based resources on students’ perceived motivation for blogging and the acquisition of digital and social and civic competencies.

The impact of edublogs on perceived student motivation

According to Bond et al. (2020), a common idea prevalent throughout the literature is that motivation precedes engagement. Gill et al. (2009) identify blogs as one of the most useful media for personal expression and exchange of opinions. The possibility of freely expressing views on current issues encourages individuals to start a blog with the purpose of sharing their opinions online and provoking a reaction from their online readers. From an educational point of view, the motivational use of blogs in academic contexts by moving the class out of the classroom and conducting discussion forums is considered crucial to promote communication and reflection among students (Halic et al., 2010). In these circumstances, student motivation can be reflected in levels of active participation through networking practices and the development of communication skills. Exploring the effects of edublogs on students’ utilitarian motivation can be facilitated by measuring the extent to which students wanted to communicate and participate in these online learning platforms with the aim of constructing new knowledge by acquiring, analysing, producing and sharing novel information (Liao et al., 2013). Seen in this light, Pérez-Nevedo et al. (2012) focused on the perceived usefulness of edublogs to stimulate communication due to the flexibility they provide students in expressing their ideas and thoughts on educational issues. Along these lines, Pardo-Baldoví et al. (2020) examined the perceptions of students of the Master’s Degree in Primary Education on the use of edublogs and highlighted the increased motivation of students due to the new learning opportunities they had to share resources and information that they could use in their future professional career. Martín Montilla and Montilla-Coronado (2016) also analysed the opinion of undergraduate students on the use of edublogs as a learning tool and found that most participants considered them a motivating resource for expressing themselves and learning independently due to their effectiveness in linking educational content with their own experiences, enhancing their communication skills and fostering autonomy as learners and future professionals, which motivated them to continue using them for academic purposes. In these studies, the use of these digital media

Table 1 Advantages of the blogging activity in higher education.

Reference	Sample and context	Methods	Results
Moore-Russo et al. (2015)	22 preservice and in-service mathematics teachers (USA)	The study analysed asynchronous online discussions through inductive qualitative techniques.	Web-based resources fostered student interaction and autonomy.
DeWitt, Naimie and Siraj (2013)	50 undergraduates in their first semester in the Faculty of Education (Malaysia)	An online survey was designed and the url was published for students to take during the course and list the ICT tools (e.g. blogs and repositories) they had used and why.	Blogs enhanced students' skills in social interaction and user-generated content development.
González-Hernando et al. (2020)	225 students in the 1st and 2nd year of the Degree in Nursing at the University of Valladolid (Spain)	A questionnaire was administered to ask about students' knowledge about the most essential blogging skills (e.g. knowledge organisation, information sharing).	Students used the blogs frequently and improved their digital skills and creativity.
García-Sabater et al. (2011)	16 students enrolled in the Master's programme 'Inventory Management', Valencia (Spain)	A mixed methodology. A quantitative methodology on the number of entries words per entry, number of links and photos and a qualitative methodology on both format and content according to several criteria: originality, relevance and suitability. The assessment was carried out at the end of the term.	Students worked cooperatively and learned new and useful ways to share, organise, store and retrieve information related to industrial engineering.
Alharbi, M. (2015)	Two groups of 30 EFL college students at King Khalid University (Saudi Arabia)	Research on the positive effect of blogs on the development of integrated reading and writing skills and on the improvement of students' attitudes towards writing skills was conducted by examining pre- and post-course scores for a 16-week course.	The computer-mediated communication tools facilitated the development of integrated reading and writing skills and enhanced their attitudes during the course.
Cabero-Almenara and Marín-Díaz (2014)	525 students of the University of the Basque Country, Cordoba and Seville (Spain)	A quantitative, with a non-experimental and non-correlational descriptive design. The objective of the study was to ascertain students' views of social software and collaborative group work versus individual work.	Blogs helped collaborative group work to gather everyone's ideas and make decisions for learning purposes, promoting socialisation and the search for and exchange of information.

outside the classroom is certainly correlated with high levels of students' self-reported motivation, which is reflected in the development of new forms of participation, communication and learning in academic settings, motivating students to take advantage of the potential of these ICT tools in new e-learning scenarios.

The impact of edublogs on the development of social and civic competences

Several studies have analysed the use of these web-based communication tools to enhance students' learning experiences, especially with regard to the development of social and civic competencies. In this respect, research by Hamid et al. (2015) focused on students' participation in academic blogs with the aim of enhancing social learning through working together in virtual learning communities. They found that students made effective use of social technologies to boost peer learning and mobilise strong participation, thereby increasing their motivation and social development. In another study on a similar topic, Úbeda-Colomer and Molina (2016) examined students' views on the effectiveness of these online tools as an effective means to discuss certain controversial social issues, such as gender stereotypes or other ethical issues. They found that blogs were mainly used by respondents to enhance their social and civic competencies through discussion forums where they could defend their own perspectives and broaden the scope and depth of the topics under discussion. Drawing on the perspectives of democratic citizenship from civic and human rights education, Canan (2013) examined how blog use helped students express their individual voices in a democratic community by presenting them with literature that promoted democratic values and tolerance. Results indicated

students' great engagement in online discussions on the democratic values of meaningful participation, freedom of speech, and personal initiative. In a similar vein, Bardwell (2011) examined how civic learning projects could help students develop social, civic and communication skills and foster political engagement. One such civic learning project was a collaborative fact-checking weblog, through which students developed their analysis and presentation skills. The author tracked class scores before and after the implementation of these projects and concluded that weblogs effectively boosted students' analysis and communication skills. More recently, Marín et al. (2020) surveyed the opinions of student teachers on the impact of these web-based resources on the development of social and civic competencies, among other key competencies. The results showed that most of the participants considered blogs as vehicles for breaking down cultural and social barriers and, therefore, for fostering a sense of community.

Despite the aforementioned studies, little attention has been given to the motivational and social dimensions of these technology tools (Deng and Yuen, 2012; Ge et al., 2019). To shed more light on these issues, the present study aims to investigate students' perceptions towards academic blogging with respect to their self-perceived motivation and their learning of digital and social and civic competencies.

Method

The aim of this study is to investigate the effects of academic blogging on students' self-reported motivation and perceived learning of different skills and competencies that are significant in their future teaching practice as social studies teachers, such as digital skills and social and civic competencies. In order to

achieve this general aim, the following research objectives have been established:

RO1: To collect information on the digital skills learning that students report having acquired through blogging, to get a clearer picture of their learning before and after using this online tool.

RO2: To collect information on students' level of self-reported motivation when blogging.

RO3: To obtain information about the opinions of undergraduate students of education on the perceived development of social and civic competencies achieved through the use of blogs.

RO4: To obtain information on the opinions of undergraduate students with different levels of self-perceived motivation and ICT competence on the acquisition of digital skills and the development of social and civic competencies achieved through the use of blogs.

A quantitative methodology was used to provide information on the level of participation of undergraduate students in this digital delivery system with baseline and end-line questionnaires to measure the degree of compliance with pre- and post-blogging training. Participants' answers were collected and examined before and after taking this web initiative in class.

Participants. In this research, participants belonged to two groups of the core unit Teaching Social Sciences of the Primary Education degree at the University of Murcia, Spain. A non-probability sampling method was adopted and the respondents voluntarily agreed to participate. The distribution was slightly skewed: 60.1% (Group 1), 39.9% (Group 2), and this is due to the different sizes of the groups (Group 1 consisted of 61 students and Group 2 of 40). The convenience sample consisted of 101 of student teachers (25 males (24.7%) and 76 females (75.3%). Respondents' age ranged between 19 and 22 years ($M = 20.94$ and $SD = 2.77$) and their average age was 20 years old (52.6%). Most of them had not repeated the university core unit (94.7%). The sample size did not vary over the 4-month period and informed consent was obtained from all participants.

Implementation of the ICT programme. The implementation of this programme was developed by two lecturers in two groups in the core unit called Teaching Social Sciences, which is mandatory for all second-year students of the Primary Education degree of the University of Murcia, Spain. The aim of the core unit is to improve their knowledge and pedagogical skills in the teaching of social sciences in a way that promotes academic excellence and professional skills. The 4-month core unit was held during the 2019–2020 academic year and the two-hour classes were held twice a week (Tuesdays and Thursdays) from 4 to 6 p.m. The approach adopted in this programme was based on the development of online communication services to motivate learning in social science education. The main objective was to provide a space for reflection, collaboration and online participation from a constructivist perspective. To achieve this objective, students had to create their own blogs and post an entry related to the contents covered in the core unit before the start of each lesson. Thus, the undergraduate students had to organise and deliver information through these web resources, while questioning themselves and others about the content of social science teaching in primary schools. In order to avoid technical obstacles, time was devoted to solving any possible technical problems encountered during their implementation. As for the teamwork activities in class, they focused on the promotion of problem-solving situations, thought-provoking discussions and collaborative learning, which facilitated the content acquisition and increased their learning experiences. Presentation skills were also reinforced through the blogs, as students were encouraged to post videos and illustrate

their knowledge of social and political issues previously discussed in the classroom. Participants in both groups were monitored throughout the term, checking their entries and comments regularly and giving each other feedback on their blog posts through asynchronous communication. During the term, they were asked to post their teamwork activities by assembling their digital portfolios, which contributed to collaborative e-learning and to gain a new perspective on the subject (Tang and Lam, 2014).

Data collection tools. Data on the impact of blogs were collected using an ad hoc questionnaire, the purpose of which is to collect information in a systematic and structured way on the dimensions and variables established for the research. Several studies have pointed out some advantages of this technique, namely the collection of a large amount of information on a wide range of topics, its cost-effectiveness and ease of administration, its quick and clear steps for completion, its instant and anonymous responses, and its effective comparability and analysis of results (Bee and Murdoch-Eaton, 2016; Williamson, 2013). However, it also has some limitations, related to its differences in interpretation, lack of specific information and a limited response rate (Bird, 2009). It is composed of three sections and 21 items. The first dimension comprises four items related to the current knowledge on blogging before and after the implementation of this programme. The second section has four items related to the perceived level of motivation during this programme and the third section contains 13 items related to students' perception of how this technological tool can help them learn social and civic competencies. The items were scored on a Likert scale of one to five points ranging from "very poor" to "excellent" to measure the degree of respondents' agreement with the ideas presented (see Table 2). This questionnaire was based on an earlier research instrument applied in a previous study and validated mainly by external computer experts through focus group discussions (Gómez-Carrasco et al., 2019).

Procedure and data analysis. This study focuses on the comparison of self-perceived motivation and the development of digital, social and civic competencies by student teachers through the collection of pre-test and post-test data. Measuring the potential change in student perceptions between pretest and posttest provides a vehicle for assessing the impact of blogging in a higher education context. To analyse their responses more meaningfully, participants identified themselves as having high, medium, or low levels of motivation and ICT competence before scoring items both at the beginning and at the end of the term. Respondents' differences in pre- and post-test scores were examined by analysing the composite scores resulting from averaging the items in each of the three parts of the questionnaire. The data collected during the research were analysed using the statistical package for the Social Science software (SPSS) v.26.0. In addition, non-parametric tests were implemented to examine the relationships between the variables under study (self-reported motivation and ICT competence) because the data did not follow a normal distribution. For all non-parametric tests, a significance level, also called alpha or α , of 0.05 was determined. The following section describes the averages, standard deviations and other statistical results obtained in this study.

Results

As for the results related to the first three proposed objectives, students' average scores on the different dimensions were reasonably positive at the beginning of the term and quite good at the end (see Table 3).

Table 2 Data collection instrument.

Current knowledge in blogging				
1. I know the fundamental parts of a blog	1	2	3	4
2. I understand the basic instructions of a blog	1	2	3	4
3. I can follow the steps to create a blog	1	2	3	4
4. I can post a blog entry to expand my knowledge of the content of the core unit.	1	2	3	4
Self-reported motivation in blogging				
5. I would like to create a blog in this core unit.	1	2	3	4
6. I would like to post an entry on a blog on this core unit.	1	2	3	4
7. I feel motivated when using this online tool for educational purposes	1	2	3	4
8. I feel more motivated in class when I organise and retrieve information more effectively through blogs	1	2	3	4
Acquisition of social and civic competencies and problem-solving skills				
9. I think that blogs can help me to study the content of this core unit	1	2	3	4
10. I reckon that blogs can help me to acquire social science knowledge more effectively	1	2	3	4
11. I reckon that blogs can help me to learn interdisciplinary content from different subjects	1	2	3	4
12. I think that blogs can help me to plan, design and evaluate my learning processes.	1	2	3	4
13. I consider that blogs can promote cooperative learning	1	2	3	4
14. I reckon that blogs can help me to improve my capacity to interpret relevant data	1	2	3	4
15. I think that blogs can help me to develop critical social thinking	1	2	3	4
16. I consider that blogs can help me to promote democratic values to achieve a peaceful multicultural society	1	2	3	4
17. I reckon that blogs can help me to develop problem-solving skills	1	2	3	4
18. I think that blogs can help me to develop collective social responsibility	1	2	3	4
19. I reckon that blogs can help me to increase my capacity for active and constructive participation in class through tolerant and respectful attitudes	1	2	3	4
20. I believe that blogs can foster a better understanding of social, economic, legal and political concepts and institutions	1	2	3	4
21. I believe that blogs can be useful in raising awareness of diversity.	1	2	3	4

Source: Adapted from Gómez-Carrasco et al. (2019).

Wilcoxon signed-rank tests were run to examine whether participants' self-reported levels of motivation, digital skills acquisition and social and civic competencies in the core unit at the end of the term were significantly higher than those found at the beginning of the study. The results show statistically significant differences between pre- and post-tests (see Table 4). Students' perception of their level of digital skills acquisition, self-perceived motivation and the development of social and civic competencies related to blogging improved. Based on these results, it can be concluded that the use of edublogs significantly increased their motivation, skills and competencies throughout the term.

As for the opinions of undergraduate students with different levels of self-perceived motivation and ICT competence on the acquisition of digital skills and the development of social and civic competences before and after the implementation of edublogs, there were statistically significant differences between participants with different levels of motivation in relation to the acquisition of digital skills and the development of social and civic competences at the end of the term. There were also statistically significant differences between participants with different levels of ICT competence in relation to their self-perceived acquisition of digital skills at the beginning of the term (see Table 5).

In particular, highly motivated students had a more positive perception of the acquisition of digital skills and social and civic competences developed through blogging than less motivated students at the end of the term. However, although there were also significant differences between subgroups of students with different levels of ICT competence in terms of the acquisition of digital skills at the beginning of the term, the results revealed that they were not significant in the posttests.

Discussion and conclusions

In this study, we focus on the pedagogical effectiveness of blogs. In particular, we evaluate, from an academic point of view, a blogging experience conducted in a social science core unit of the primary education degree. To do so, we first reviewed the literature on the implementation of edublogs in higher education contexts, focusing on the analysis of university students' perceived motivation and the development of their social and civic competences. Thus, once the effectiveness of this ICT tool had

been described, we were able to assess the self-perceived motivation and the learning of digital and social and civic competencies of the undergraduate students who created edublogs for this core unit, which has allowed us to draw conclusions that will help us move forward and guide us in the future.

In terms of students' experience in creating edublogs, it is worth noting that respondents reported no problems in creating their own blogs, posting entries, leaving comments or organising and retrieving information. As some authors state, no computer programming skills are required (Davis et al., 2019; Tekinarslan, 2008). In fact, their digital skills improved by the end of the term, paving the way for new online learning initiatives in line with the innovative learning styles of digital generation students (Zhang et al., 2014).

As for their perceived motivation, the results of this study indicate that students in general have a positive impression of this collaborative platform. In fact, significant differences were identified among student teachers in this aspect of the research between the two measured points in time, which means that the implementation of this programme could have improved the self-reported motivation of the students. It is also worth noting that the significant differences in favour of highly motivated students on the perceived acquisition of digital skills and social and civic competences at the end of the term highlight the relevance of self-perceived motivation in this type of scenario. Other research studies in higher education highlight the importance of using network resources to increase motivation and improve communication practices progressively over the period considered (Al-Hebaishi, 2012; Fathi et al., 2019; Royuela et al., 2020).

Other authors have also focused on the relevance of embracing these digital platforms to develop new forms of online participation and increase students' social and civic competences, thus improving their ability to understand and interpret different points of view (Bardwell, 2011; Kirkwood and Price, 2014; Molina et al. 2016). Creating and participating in edublogs helps them to make the right decisions on current issues that affect them and that go beyond their personal interest (Marín et al. 2020). Within this constructive framework, educators must design and apply strategies that allow for the resolution of social problems oriented towards satisfying the interests and needs of the students (Campillo-Ferrer et al. 2020).

Indeed, according to the result of this study, the impact of blogging on respondents' collaborative work was positively significant. According to some studies, factors that explain the improvement of students' social and collaborative skills are the regular interactions with their peers, involving them in stimulating communicative tasks, or the user-friendly interface that allows easy location of information and effective use of instant messaging (Hamid et al. 2015; Úbeda-Colomer and Molina, 2016).

In terms of e-learning, participants indicated that blogs enabled them to grasp the meaning of interdisciplinary social science content as an effective way to supplement their classroom learning (Bardwell, 2011). For this reason, given that students learn in different ways, the challenge for educators is to use these new instructional media effectively to expand students' knowledge and skills by integrating instruction from various academic disciplines in social science education and thus ensure high-

Table 3 Descriptive statistics of participants' self-perceived level of digital competence when blogging.

Dimensions	(n = 101)			
	Pre-test		Post-test	
	M	SD	M	SD
Self-perceived development of digital skills	3.29	0.99	3.91	0.87
Self-perceived motivation	3.79	0.94	4.06	0.89
Self-perceived development of social and civic competences	3.57	0.92	3.99	0.87

Table 4 Results of the Wilcoxon signed-rank test on the three dimensions of the questionnaire.

Dimensions	Negative rank			Positive rank			Test statistics		
	n	Mean rank	Sum of ranks	n	Mean rank	Sum of ranks	Ties	z	p
Self-perceived development of digital skills	22	44.11	970.50	75	50.43	3782.50	4	-5.071	0.001
Self-perceived motivation	22	31.25	687.5	48	37.45	1797.5	31	-3.32b	0.001
Self-perceived development of social and civic competences	21	44.14	927.00	69	45.91	3168.00	11	-4.524	0.001

Table 5 Results of the kruskal-wallis test on the acquisition of digital skills and social and civic competencies.

Dimensions	Tests	Subgroups	n	Mean Rank	H	g ¹	p
Digital skills acquisition	Pretests	High level of motivation	54	54.43	5.071	2	0.079
		Medium level of motivation	42	50.444			
		Low level of motivation	5	7.00			
		High level of ICT competence	24	64.85			
		Medium level of ICT competence	74	49.83			
		Low level of ICT competence	3	22.40			
	Posttests	High level of motivation	54	58.25	7203	2	0.027
		Medium level of motivation	42	42.55			
		Low level of motivation	5	43.70			
		High level of ICT competence	24	60.63			
		Medium level of ICT competence	74	48.83			
		Low level of ICT competence	3	27.50			
Development of social and civic competencies	Pretests	High level of motivation	54	56.83	3.886	2	0.143
		Medium level of motivation	42	46.95			
		Low level of motivation	5	73.50			
		High level of ICT competence	24	47.12			
		Medium level of ICT competence	74	51.32			
		Low level of ICT competence	3	59.20			
	Posttests	High level of motivation	54	62.39	19.131	2	0.001
		Medium level of motivation	42	39.51			
		Low level of motivation	5	24.50			
		High level of ICT competence	24	59.38			
		Medium level of ICT competence	74	49.35			
		Low level of ICT competence	3	24.67			

quality democratic learning practices appropriate to students' wide range of interests (Canan, 2013; Marcelo et al. 2015; Miralles-Martínez et al. 2019).

In this sense, the articulation of technological and methodological innovations allows educators to create learning scenarios supported by implementing these motivating social networking sites that students use on a daily basis, and to convey good quality content that students are interested in commenting on and sharing (Hou et al. 2020; Yang et al. 2016). Therefore, blogs should not be seen as a time-consuming resource among educators. Rather, their prevalent use should be a constant in their teaching practice, as technologies as a whole are progressively growing. Therefore, education should gradually rely more on ICT-based alternative educational delivery systems and applications for learning and communication (Wolf, 2010). The modern classroom should be on the way to a total digital transformation that favours full interaction between students and educators (Vaughan, 2010). Since educators' pedagogical views and epistemological perspectives often influence the selection and use of technologies, a change of attitude is required to create a more interactive environment that results in a higher level of engagement and communication among teachers and learners.

However, the findings of this study cannot be representative of the teaching and learning processes taking place in higher education contexts, as students' self-perceptions of their civic and social competences do not necessarily reflect their actual competences in this domain, which implies that further research is needed to explore the differences between students' perceptions and actual social and civic competences. In addition, other limitations such as the sample size, the lack of a control group and the focus on a single unit indicate that it would be advisable to extend the analysis to more participants, groups and units in order to obtain a clearer picture of students' views on the subject.

Data availability

The datasets generated during the current study are not publicly available because the identities of some participants are visible, undermining privacy protection, but they are available from the corresponding author upon reasonable request.

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Author contributions

All the authors contributed equally to this work.

Competing interests

The authors declare no competing interests.

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