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Basic Education Students' Digital Competence in the Area of Communication: The Influence of Online Communication and the Use of Social Networks

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Abstract: The global public health crisis unleashed by the COVID-19 pandemic has made it clear that digital competence in education is no longer an option, but a necessity. Online communication with friends using social networks is an activity in which young people very frequently and at increasingly early ages engage. This article presents the results of a study analyses digital-competence levels in the area of communication of Spanish basic-education students (aged 12–16) and establishes whether online communication with friends and the use of social media impact it. A quantitative methodology with a descriptive and cross-sectional design was used. The sample comprised 807 students, and data collection was based on a problem-solving test. Findings show that students who use online communication with their friends very often and that those who use social networks a lot have lower levels of digital competence. Education centres should reflect on this in order to implement curricular programs that may strengthen this type of competence.

Keywords: digital competence; ICT; basic education; digital communication; online communication; social networks



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1. Introduction

Information and communication technologies (ICTs) are integrated into most areas of developed societies and are an important part of their citizens' lives [1]. Therefore, it is increasingly necessary to teach and develop the knowledge, skills, and attitudes that are required for the safe use of ICT [2].

The current global public health crisis triggered by the COVID-19 pandemic exposed important shortcomings regarding the pedagogical integration of ICTs, raising awareness of the fact that digital competence is no longer an option, but a necessity [3,4]. Research on this competence is currently a focus of interest in countries' education policies [5].

In Europe, digital competence is regarded as a key competence in lifelong learning and is defined as the confident, critical, and responsible use of and interaction with digital technologies for learning, at work, and for participation in society. This includes information and data-literacy communication, media literacy, digital-content creation (including programming), safety (including digital well-being and competences related to cybersecurity), intellectual-property matters, problem solving, and critical thinking [6] (p. 9).

There are different models to assess this competence. This research follows one of the benchmarks for the development of digital competences in Europe: the European Digital Competence Framework (DigComp).

Online communication with friends, understood to be an exchange of messages through different Internet platforms, is an activity in which young people very frequently engage. For this purpose, they mainly use social media, becoming familiar with them at increasingly early ages.

This research analyses the digital-competence level in the area of communication of Spanish basic-education students (aged 12–16) and determines whether the use of social networks and online communication with friends impact it.

Over the past decade, research in the field of social networks mainly focused on studying the influence of these digital platforms on learning and communication processes, academic performance, and interpersonal relations. Very few studies analysed the link between the use of social networks and the development of digital competences in the area of communication.

This study provides scientific evidence in an area of research that is still scarcely developed. Understanding whether online communication with friends and the use of social networks defines the level of digital competence in the communication of basic-education students is important to guide institutional decisions and educational policies targeted at the development and assessment of digital competence. In Spain, basic education encompasses primary and compulsory secondary education. It comprises 10 years of academic education between the ages of 6 and 13. Its purpose is to provide mainstream education to enable the acquisition of basic cultural elements, such as spoken and written expression and comprehension, calculus, study habits, individual and cooperative work, and growing autonomy to promote the full development of students.

2. Theoretical Foundation

Over the last few decades, ICT has strongly impacted society [7]. From ever earlier ages, children approach technology with the same curiosity with which they contemplate the world in which they live [8]. Digital competence has become an essential part of students' lives in the context of virtual education that resulted from the global health crisis caused by the COVID-19 pandemic.

Digital competence is understood as the set of knowledge, skills, and attitudes that drive students to use ICT to work, solve problems, and participate individually and in collaboration with others in a creative, critical, and responsible way [9].

There are different standards or theoretical models of reference to assess this competence. One of the most widely used in the European continent is the European Digital Competence Framework (DigComp) [10]. In 2013, the European Commission presented the Framework for Developing and Understanding Digital Competence in Europe (DigComp 1.0) [11]. This model arranged digital-competence dimensions into five areas (information, communication, content creation, safety, and problem solving), three levels (foundation, intermediate, and advanced), and three fields (knowledge, skill, and attitude). In 2016, it was updated to the European Digital Competence Framework for Citizens (DigComp 2.0) [12], and in 2017 with version DigComp 2.1. [13].

Using the Framework for Developing and Understanding Digital Competence in Europe (DigComp 1.0) as a basis, this research assesses communication, described as follows: “communicate in digital environments, share resources through online tools, link with others and collaborate through digital tools, interact with and participate in communities and networks, cross-cultural awareness” [11]. The digital competences that it covers are: interacting through technologies, sharing information and content, engaging in online citizenship, collaborating through digital channels, netiquette, and managing digital identity. In recent years, research focused on this competence area following the European Digital Competence Framework [14–17].

Technological changes have transformed young people's way of interacting and communicating [18]. The digital revolution lead to greater social interaction among Spanish teenagers, and it is changing how they establish contact, build friendships, and communicate, affecting their routines and everyday contexts. The development of their communicative competence rests on interactions with others, connections, and friendship bonds [14], which is addressed in this study.

In their socialization process, young people make use of social networks, which are Internet-based structures that allow for people to connect with one another according to

common interests and values to share contents in a variety of communication formats and establish interpersonal relations [19]. They provide teenagers with almost boundless possibilities to broaden their network of contacts and friends, and are shaping the dynamics of their relationships, with WhatsApp, YouTube, and Instagram being among their favourites [20,21].

The widespread use of technological devices to access social networks reveals new ways of communication [22,23]. Teenagers need to communicate, express their feelings and emotions, and project an image of themselves among their peers. They identify each other through message exchanges and gather interesting information to share with their followers [24].

Simultaneously, in the last few decades, the generalised use of social networks among younger populations drew researchers' interest in studying the educational potential of these digital tools [25–29].

Research mostly presents these applications as tools to enhance the teaching and learning process [30,31]. In this vein, there are studies that prove their benefits in increasing communication and interaction, fostering the collaborative building of knowledge, creativity, and the development of complex cognitive and metacognitive strategies [26,32–38]. However, there are others that draw attention to the negative effects that they may have on students, such as an increase in plagiarism, distractions that lead to decreased concentration on the learning process, and an increase in social-network addiction and dependence problems [39].

Other studies approach their influence on interpersonal relations and academic performance. In this regard, there are those that report a positive and significant impact of these digital tools on academic performance [40,41]. Those against this conclude that, although social networks are information and communication resources for students, their use negatively impacts their academic performance and their relationships with their classmates [42].

Research also addressed their influence in communication, providing evidence that social networking improves communication and social-interaction skills [43,44], and that younger generations spontaneously develop the ability to communicate and create content in different contexts [45,46]. Moreover, certain studies reveal that these digital tools help in the acquisition of vocabulary and writing skills in foreign languages [47–49]. There are studies showing that the dialogical and iconic nature of social-networking activities is associated with the capacity to argue, debate, and provide feedback [50].

Lastly, research is scarce that identifies the influence of social networking on the level of digital competence in the area of communication of students aged 12–16, but there are studies that report that social networks clearly define the development of these young people's digital identities [14].

3. Methodology

The study is based on a quantitative approach with a descriptive cross-sectional design, specifically an ex post facto design [51,52].

3.1. Goal and Hypothesis

The general goal is to analyse the level of digital competence in the area of communication of basic-education Spanish students (aged 12–16). This is defined by the following specific objectives:

- Identify the level of digital competence in communication according to the dimensions of knowledge, skill, and attitude.
- Learn the level of digital competence in communication considering the six competences that make up this competence area (as set out in the DigComp model): interacting through technologies, sharing information and content, engaging in on-line citizenship, collaborating through digital channels, netiquette, and managing digital identity.

- Verify whether online communication with friends outside school hours and the use of social networks influence the level of digital competence in communication.

The posed research hypotheses are:

Hypothesis 1. *Students show an intermediate level of digital competence in the area of communication.*

Hypothesis 2. *Students show an intermediate level of digital competence in the six areas of competence that make up this competence area.*

Hypothesis 3. *Students who engage in online communication with friends outside school hours and use social networks show better levels of digital competence in the area of communication.*

3.2. Sample

Research was carried out in the autonomous community of Castile and León (Spain). Stratified random sampling [53] was used with a $\pm 4\%$ margin of error for a 95% confidence interval, working with a sample of 807 students aged 12–16 from 18 education centres. Gender distribution in the sample was very well balanced (Table 1).

Table 1. Sample distribution.

Total Sample	Year				Gender			
	6 Primary Education		1 Secondary Education		Female		Male	
N	N	%	N	%	N	%	N	%
807	668	82.8	139	17.2	415	51.4	392	48.6

3.3. Variables

Three types of variable were studied:

1. Dependent variables relating to the competence dimensions of communication: knowledge (KN), defined as knowing, and assessed using eight multiple-choice items with four answer options each (only one of which was correct) with a 0–8 range; skill (SK), defined as know-how, and assessed using 10 multiple-choice items with four answer options each (only one of which was correct) with a 0–10 range; and attitude (AT), defined as knowing how to be assessed using six items that formed a Likert type scale of attitudes with answer scores between 1 and 5 in a 6–30 range.
2. Digital competences that comprise communication: interacting through technologies (IT), sharing information and content (SIC), engaging in online citizenship (EOC), collaborating through digital channels (CDC), netiquette (N), and managing digital identity (MDI). Each competence was assessed using three multiple-choice items with four answer options (only one of which was correct), with variables ranging from 0 to 3.
3. Predictor variables defined by the frequency with which students engage in online communication with friends and make use of social networks outside school hours. Information on these variables was collected using a 5 point Likert-type scale: (1) never, (2) one/two days a week, (3) three/four days a week, (4) five/six days a week, and (5) every day.

3.4. Instrument

The instrument to assess digital competence in the area of communication was designed using an item bank based on a previously designed and validated model of digital-competence indicators in the area of communication (available at <https://gredos.usal.es/handle/10366/139409>. Accessed on 15 February 2021) and on the criteria for the development of information-gathering instruments [54]. The knowledge and skill dimensions were addressed using an objective 18 item test that presented situations where students

were to make decisions choosing a correct answer out of four possible options. A 6 item Likert-type scale was used for attitude.

This assessment test was refined through a review by expert judges and administered to a pilot sample of 288 basic-education students. Obtained results were used to design the final test (Table 2).

Table 2. Structure of digital-competence assessment test, communication.

No. Items Per Dimension			No. Items Per Level		
Knowledge	Skill	Attitude	Foundation	Intermediate	Advanced
8	10	6	6	8	4

To test the reliability of the entire test and of its different competence dimensions (knowledge, skill, and attitude), Cronbach's alpha and α_{ordinal} or common factor model were calculated to measure internal consistency [55] alongside Armor's theta (principal-component model). The latter two are considered to be more appropriate for scales that include fewer than five categories or dichotomous items, and were calculated using tetrachoric correlations and rotated factor loads following the instructions and Excel spreadsheet elaborated by Domínguez-Lara [56].

Table 3 shows the obtained data. Cronbach's alpha indices for the knowledge and skill dimensions were low (<0.70), which could have been because this measure assumes the continuous nature of variables and is considered to be inadequate for scales with fewer than five categories. On the basis of the suggestions of certain authors [57,58] regarding the use of this index, the dichotomous nature of the scale lead to the use of correction for attenuation (CA) to compare Cronbach's alpha and α_{Ordinal} . The obtained values were satisfactory in all cases (>0.70) and sufficient to guarantee the scales' reliability [59].

Table 3. Reliability of digital-competence assessment test, communication.

Dimensions	N	α_{ordinal}	Armor's Theta	Correction for Attenuation (CA)	No. Elements
Knowledge–Skill	807	0.70	0.71	17%	18
Attitude	788	0.814	0.80	11%	6
Entire area	788	0.864	0.80	19%	24

Table 4 shows the difficulty index of each of the test items.

Table 4. Test structure according to item difficulty level.

Items	No. Items	% Guesses	Criterion	Rating	Level
1, 6, 8, 15, 16, 17	6	81.2; 79.1; 66.8; 77.3; 62.1; 61.8	61–85	Easy	Foundation
2, 5, 9, 11, 12, 13, 14, 18	8	59.4; 44.6; 53.5; 47.8; 44.7; 57. 59.7; 45.2	41–60	Moderate	Intermediate
3, 4, 7, 10	4	31.1; 22.7; 36.6; 35.1	15–40	Difficult	Advanced

Two items were added to the digital-competence assessment test in order to collect information on practices of online communication with friends and use of social networks.

3.5. Data Analysis

The test's difficulty/easiness index was calculated on the basis of the number of guesses (%) for each of the different competence dimensions (knowledge, skill, and attitude).

For data classification, the correct answer was registered as 1, and the 3 that were incorrect as 0. In this regard, the achieved scores in the competence dimensions and in

each of the digital competences were obtained from the result sum of the achieved score in each item. Regarding attitude items, each answer was categorized as follows: strongly disagree (1), disagree (2), indifferent (3), agree (4), and strongly agree (5), calculating an overall score in the attitude dimension.

Descriptive and inferential analyses were performed. The Kolmogorov–Smirnov normality test was used to examine sample distribution, showing the non-normality of data ($Z = 0.09$; $p < 0.05$). Consequently, analysis was performed using nonparametric tests, specifically the Kruskal–Wallis H test for >2 independent samples. The Kruskal–Wallis test is an extension of the two-group Mann–Whitney U (Wilcoxon rank) test. Thus, Kruskal–Wallis is a more generalized form of the Mann–Whitney U test [60]. Subsequently, the data were accurately defined using the Mann–Whitney U test.

Data were analysed using SPSS v.25 and the Excel spreadsheet elaborated by Domínguez Lara [56] that is based on a tetrachoric correlation matrix for reliability analysis related to dichotomous items.

4. Results

Below are the main results yielded by the descriptive and inferential analyses.

4.1. Descriptive Statistics

Data were obtained according to the three competence dimensions defined in the test (knowledge, skill, and attitude) and the six competences into which the items were grouped: interacting through technologies (IT), sharing information and content (SIC), engaging in online citizenship (EOC), collaborating through digital channels (CDC), netiquette (N), and managing digital identity (MDI). The latter were created from the sum of the scores in the four items that measured each of them.

Table 5 shows the statistical measures of mean, standard deviation, skewness, and kurtosis. Since the items were dichotomous (guess 1/incorrect 0), the maximal obtained ratings in the average score were 1.

Table 5. Descriptive analysis according to competence dimensions.

Dimensions	N	No. Items	Min	Max	\bar{x}	SD	Skewness	Kurtosis
Knowledge	804	8	1	8	4.29	1.59	−0.19	−0.06
Skill	804	10	1	10	5.41	1.90	−0.15	−0.61
Attitude	793	6	6	30	26.02	4.32	−2.39	9.06

Regarding competence dimensions, three of them were negatively skewed. In relation to kurtosis, knowledge and skill scored below 3 and were negative in all cases; hence, distributions may be defined as platykurtic. In the attitude dimension, kurtosis was above 3 and positive, so it might be defined as leptokurtic.

The knowledge and the skill dimensions were on a midpoint on the scale, with means of 4.29 and 5.41, respectively, with maximal scores being 8 for the former and 10 for the latter. The achieved score in attitude was far above the previous, with an average of 26.02 out of 30.

Considering digital competences, average scores oscillated between 1.28 (CDC) and 1.94 (N). Thus, students had greater knowledge and skill in netiquette and interacting through technologies, followed by managing digital identity, engaging in online citizenship, sharing information and content, and collaborating through digital channels (Table 6).

Table 6. Descriptive analysis according to digital competences.

Competences	N	No. Items	\bar{x}	SD	Skewness	Kurtosis
IT ¹	807	3	1.72	0.79	−0.32	−0.25
SIC ²	807	3	1.46	0.78	0.06	−0.40
EOC ³	807	3	1.57	0.95	−0.07	−0.91
CDC ⁴	807	3	1.28	0.93	0.22	−0.83
N ⁵	807	3	1.94	0.96	−0.52	−0.72
MDI ⁶	807	3	1.69	0.91	−0.21	−0.77
Total	807	18	9.66	2.93	−0.28	−0.30

¹ Interacting through technologies; ² sharing information and content; ³ engaging in online citizenship; ⁴ collaborating through digital channels; ⁵ netiquette; ⁶ managing digital identity.

The total average score achieved in the knowledge and skill test was 9.66 out of 18, which shows a foundation level of knowledge and skills in digital competence.

4.2. Inferential Statistics for Impact of Online Communication and Use of Social Networks on Level of Digital Competence in Communication

To conduct the inferential study, students were divided into 5 groups according to their online communication practices and use of social networks. The Kruskal–Wallis test for k independent samples was used, setting significance at $\alpha = 0.05$. Differences among subsamples were analysed according to the different competence dimensions and digital competences.

4.2.1. Online Communication with Friends

Considering the competence dimensions (Table 7), students who scored lower in skill were those who engaged in online communication with their friends every day ($\bar{x} = 4.98$; $H = 19.66$; $p = 0.03$).

Table 7. Kruskal–Wallis H test for independent samples according to different competence dimensions.

Dimension	Frequency (Days/Week)	N (%)	Max. Possible Score	\bar{x}	SD	Kruskal–Wallis H (p)	Cohen's D
KN ¹	Never	227 (28.48)	8	4.31	1.55	1.52 (0.98)	0.2
	1–2	229 (28.73)		4.17	1.55	5.67 (0.58)	
	3–4	129 (16.18)		4.48	1.61	12.64(0.81)	
	5–6	43 (5.39)		4.30	1.65	1.45 (0.98)	
	Every day	169 (21.20)		4.19	1.75	13.98 (0.52)	
SK ²	Never	227 (28.48)	10	5.41	1.89	13.87 (0.18)	0.1
	1–2	229 (28.73)		5.56	1.91	14.97 (0.13)	
	3–4	129 (16.18)		5.65	1.94	16.66 (0.08)	
	5–6	43 (5.39)		5.26	2.01	9.96 (0.44)	
	Every day	169 (21.20)		4.98	1.91	19.66 (0.03)	
AT ³	Never	225 (28.73)	30	25.63	5.21	23.81 (0.41)	0.2
	1–2	226 (28.86)		26.13	3.91	17.33 (0.79)	
	3–4	126 (16.09)		26.58	3.28	9.83 (0.99)	
	5–6	42 (5.36)		25.74	4.26	25.68 (0.32)	
	Every day	164 (20.94)		26.21	4.18	14.93 (0.90)	

¹ Knowledge; ² skill; ³ attitude.

Regarding digital competences (Table 8), the highest scores in interacting through technologies were achieved by those who never use online communication with their friends ($\bar{x} = 1.89$; $H = 15.26$; $p = 0.002$), and the worst by those who do so every day. Statistical differences were significant in both cases. Similar results were achieved in netiquette, where students who engage in online communication with their friends daily were those who scored the lowest, with statistically significant differences ($\bar{x} = 1.67$; $H = 17.45$; $p = 0.001$).

Table 8. Kruskal–Wallis H for independent samples according to digital competences.

Competences	Frequency (Days/Week)	N (%)	Max. Possible Score	\bar{x}	SD	Kruskal–Wallis H (<i>p</i>)	Cohen's D
IT ¹	Never	227 (28.48)	3	1.89	0.72	15.26 (0.002)	0.4
	1–2	229 (28.73)		1.75	0.79	0.65 (0.88)	
	3–4	129 (16.18)		1.64	0.81	3.26 (0.35)	
	5–6	43 (5.39)		1.72	0.83	0.67 (0.88)	
	Every day	169 (21.20)		1.52	0.85	14.65 (0.002)	
SIC ²	Never	227 (28.48)	3	1.44	0.74	3.86 (0.35)	0.2
	1–2	229 (28.73)		1.50	0.80	1.37 (0.71)	
	3–4	129 (16.18)		1.53	0.77	5.24 (0.15)	
	5–6	43 (5.39)		1.51	0.96	6.54 (0.08)	
	Every day	169 (21.20)		1.40	0.77	4.08 (0.25)	
EOC ³	Never	227 (28.48)	3	1.50	0.99	4.76 (0.19)	0.2
	1–2	229 (28.73)		1.54	0.93	1.38 (0.71)	
	3–4	129 (16.18)		1.68	0.96	5.25 (0.15)	
	5–6	43 (5.39)		1.49	0.86	3.07 (0.38)	
	Every day	169 (21.20)		1.64	0.93	1.71 (0.63)	
CDC ⁴	Never	227 (28.48)	3	1.28	0.92	0.58 (0.90)	0.2
	1–2	229 (28.73)		1.27	0.91	0.80 (0.85)	
	3–4	129 (16.18)		1.39	0.97	4.49 (0.21)	
	5–6	43 (5.39)		1.05	0.95	4.13 (0.25)	
	Every day	169 (21.20)		1.26	0.94	0.70 (0.87)	
N ⁵	Never	227 (28.48)	3	2.02	0.92	2.39 (0.50)	0.1
	1–2	229 (28.73)		1.98	0.91	2.03 (0.56)	
	3–4	129 (16.18)		2.05	0.97	3.26 (0.35)	
	5–6	43 (5.39)		2.05	0.97	2.07 (0.55)	
	Every day	169 (21.20)		1.67	1.02	17.45 (0.001)	
MDI ⁶	Never	227 (28.48)	3	1.60	0.91	3.13 (0.37)	0.2
	1–2	229 (28.73)		1.69	0.89	4.01 (0.26)	
	3–4	129 (16.18)		1.84	0.90	5.75 (0.12)	
	5–6	43 (5.39)		1.74	0.87	0.82 (0.84)	
	Every day	169 (21.20)		1.67	0.95	2.21 (0.53)	

¹ Interacting through technologies; ² sharing information and content; ³ engaging in online citizenship; ⁴ collaborating through digital channels; ⁵ netiquette; ⁶ managing digital identity.

In light of these results, groups were more accurately defined, distinguishing between those who used online communication with their friends every day and those who did not. The Mann–Whitney U test to compare two independent samples was used, setting the significance level at 0.05 for significant differences, and at 0.01 for highly significant differences (Table 9).

Table 9. Nonparametric analysis Mann–Whitney U test—online communication with friends.

Variables	Mann–Whitney U Test	Wilcoxon W	Z	<i>p</i>	r Effect Size
KN ¹	51,139.00	65,504.00	−1.05	0.002 **	0.2
SK ²	45,506.00	59,871.00	−3.15	0.002 **	0.1
AT ³	50,130.50	248,265.50	−0.56	0.58	0.2
IT ⁴	45,505.50	59,870.50	−3.39	0.001 **	0.4
SIC ⁵	50,252.00	64,617.00	−1.46	0.14	0.2
EOC ⁶	51,066.50	254,907.50	−1.10	0.27	0.2
CDC ⁷	53,346.50	67,711.50	−0.22	0.83	0.2
N ⁸	44,024.00	58,389.00	−3.86	0.00 **	0.1
MDI ⁹	53,616.00	67,981.00	−0.11	0.91	0.2

¹ Knowledge; ² skill; ³ attitude; ⁴ interacting through technologies; ⁵ sharing information and content; ⁶ engaging in online citizenship; ⁷ collaborating through digital channels; ⁸ netiquette; ⁹ managing digital identity; ** significant at 0.01.

Considering competence dimensions, significant differences were found in knowledge ($z = -1.05$; $p = 0.002$), where those who communicate with their friends online every day scored lower ($\bar{x} = 4.19$; $sx = 1.66$) than those who do not ($\bar{x} = 4.27$; $sx = 1.61$). There were also significant differences in skill ($z = -3.15$; $p = 0.002$) among those who communicate daily ($\bar{x} = 4.98$; $sx = 1.91$) and those who do not ($\bar{x} = 5.39$; $sx = 1.92$), the latter having achieved better test results. These differences show that students who do not engage in online communication with friends every day obtained better results in both knowledge and skill.

Regarding digital competences, the only significant differences were found in interacting through technologies ($z = -3.39$; $p = 0.001$) between those who use online communication with friends every day ($\bar{x} = 1.52$; $sx = 0.85$) and those who do not ($\bar{x} = 1.72$; $sx = 0.79$), and in netiquette ($z = -3.86$; $p = 0.00$) between the most ($\bar{x} = 1.67$; $sx = 1.02$) and the least ($\bar{x} = 1.93$; $sx = 0.96$) connected. These are the only competences where students who do not use online communication with their friends every day were found to have achieved significantly better results.

4.2.2. Use of Social Networks

Considering competence dimensions, those who use social networks seven days a week showed lower scores in skill ($\bar{x} = 4.82$; $H = 19.08$; $p = 0.03$) (Table 10).

Table 10. Kruskal–Wallis H test for independent samples according to competence dimensions.

Dimension	Frequency (Days/Week)	N (%)	Max. Possible Score	\bar{x}	SD	Kruskal–Wallis H (p)	Cohen's D
KN ¹	Never	370 (45.85)	8	4.41	1.50	13.33 (0.10)	0.1
	1–2	171 (21.19)		4.20	1.66	13.26 (0.10)	
	3–4	70 (8.67)		4.36	1.66	6.11 (0.63)	
	5–6	47 (5.82)		4.57	1.77	8.10 (0.42)	
	Every day	138 (17.10)		3.90	1.72	14.09 (0.08)	
SK ²	Never	370 (45.85)	10	5.54	1.93	15.45 (0.12)	0.1
	1–2	171 (21.19)		5.44	1.93	9.93 (0.45)	
	3–4	70 (8.67)		5.53	1.87	9.93 (0.45)	
	5–6	47 (5.82)		5.66	1.96	12.08 (0.28)	
	Every day	138 (17.10)		4.82	1.87	19.08 (0.03) *	
AT ³	Never	368 (46.40)	30	26.03	4.78	29.07 (0.18)	0.2
	1–2	168 (21.18)		26.10	4.04	12.37 (0.96)	
	3–4	68 (8.57)		26.81	3.06	10.32 (0.99)	
	5–6	46 (5.80)		25.78	2.87	20.88 (0.59)	
	Every day	132 (16.64)		25.78	3.73	24.59 (0.37)	

¹ Knowledge; ² skill; ³ attitude; * significant at 0.05.

Regarding digital competences (Table 11), in interacting through technologies, students who never use social networks achieved the highest scores ($\bar{x} = 1.82$; $H = 13.47$; $p = 0.004$) while those who use them every day obtained the lowest ($\bar{x} = 1.49$; $H = 17.63$; $p = 0.001$). Both samples revealed significant differences. Likewise, in sharing information and content, those who most often use social networks achieved worse results ($\bar{x} = 1.32$; $H = 8.28$; $p = 0.04$). In collaborating through digital channels, the best scores were achieved by those who never use them ($\bar{x} = 1.33$; $H = 7.61$; $p = 0.05$). This is also the case with netiquette, where there are statistically significant differences showing that the worst competence level corresponded to those who use social networks every day ($\bar{x} = 1.53$; $H = 31.47$; $p = 0.00$). In managing digital identity, there were statistically significant differences in both those who never use them ($\bar{x} = 1.63$; $H = 10.35$; $p = 0.02$) and those who use them every day ($\bar{x} = 1.67$; $H = 11.06$; $p = 0.01$), with both groups being on the lowest competence level.

Table 11. Kruskal–Wallis H test for independent samples according to digital competences.

Competences	Frequency (Days/Week)	N (%)	Max. Possible Score	\bar{x}	SD	Kruskal–Wallis H (<i>p</i>)	Cohen's D
IT ¹	Never	370 (45.85)	3	1.82	0.75	13.47 (0.004) *	0.4
	1–2	171 (8.80)		1.72	0.85	2.52 (0.47)	
	3–4	70 (8.67)		1.66	0.68	5.43 (0.14)	
	5–6	47 (5.82)		1.74	0.74	0.83 (0.84)	
	Every day	138 (17.10)		1.49	0.87	17.63 (0.001) *	
SIC ²	Never	370 (45.85)	3	1.52	0.77	3.46 (0.33)	0.1
	1–2	171 (8.80)		1.49	0.76	1.66 (0.64)	
	3–4	70 (8.67)		1.46	0.74	0.94 (0.82)	
	5–6	47 (5.82)		1.51	0.83	1.30 (0.73)	
	Every day	138 (17.10)		1.32	0.83	8.28 (0.04) *	
EOC ³	Never	370 (45.85)	3	1.61	0.97	3.11 (0.37)	0.2
	1–2	171 (8.80)		1.53	0.91	2.16 (0.54)	
	3–4	70 (8.67)		1.56	0.97	0.09 (0.99)	
	5–6	47 (5.82)		1.79	0.91	3.85 (2.28)	
	Every day	138 (17.10)		1.47	0.95	2.16 (0.54)	
CDC ⁴	Never	370 (45.85)	3	1.33	0.96	7.61 (0.05) *	0.2
	1–2	171 (8.80)		1.18	0.93	6.19 (0.10)	
	3–4	70 (8.67)		1.34	0.95	0.63 (0.89)	
	5–6	47 (5.82)		1.32	0.98	1.58 (0.66)	
	Every day	138 (17.10)		1.24	0.82	7.17 (0.07)	
N ⁵	Never	370 (45.85)	3	2.04	0.92	7.28 (0.06)	0.4
	1–2	171 (8.80)		1.96	0.93	1.08 (0.78)	
	3–4	70 (8.67)		2.14	0.97	6.35 (0.09)	
	5–6	47 (5.82)		2.04	0.88	1.45 (0.69)	
	Every day	138 (17.10)		1.53	1.01	31.47 (0.00) *	
MDI ⁶	Never	370 (45.85)	3	1.63	0.87	10.35 (0.02) *	0.2
	1–2	171 (8.80)		1.77	0.92	2.71 (0.44)	
	3–4	70 (8.67)		1.73	0.85	1.42 (0.70)	
	5–6	47 (5.82)		1.83	0.96	3.29 (0.35)	
	Every day	138 (17.10)		1.67	1.03	11.06 (0.01) *	

¹ Interacting through technologies; ² sharing information and content; ³ engaging in online citizenship; ⁴ collaborating through digital channels; ⁵ netiquette; ⁶ managing digital identity; * significant at 0.05.

Using these results as a basis, the groups were further defined to check for significant differences between those who use social networks seven days a week and those who do not. The Mann–Whitney U test was used to compare two independent samples, setting the significance level at 0.05 for significant differences and at 0.01 for highly significant differences (Table 12).

Table 12. Nonparametric analysis, Mann–Whitney U test—use of social networks.

Variables	Mann–Whitney U Test	Wilcoxon W	Z	<i>p</i>	r Effect Size
KN ¹	38,985.00	48,576.00	−2.93	0.003 **	0.1
SK ²	37,226.50	46,817.50	−3.63	0.000 **	0.1
AT ³	39,900.00	48,678.00	−1.56	0.12	0.2
IT ⁴	38,051.50	47,642.50	−3.54	0.000 **	0.4
SIC ⁵	40,627.50	50,218.50	−2.39	0.02 **	0.1
EOC ⁶	43,108.00	52,699.00	−1.28	0.20	0.1
CDC ⁷	45,494.50	55,085.50	−0.28	0.78	0.2
N ⁸	33,412.50	43,003.50	−5.37	0.000 **	0.4
MDI ⁹	45,982.50	270,097.50	−0.07	0.94	0.2

¹ Knowledge; ² skill; ³ attitude; ⁴ interacting through technologies; ⁵ sharing information and content; ⁶ engaging in online citizenship; ⁷ collaborating through digital channels; ⁸ netiquette; ⁹ managing digital identity; ** significant at 0.01.

Focusing on competence dimensions, the following significant differences could be observed: in knowledge ($z = -2.93$; $p = 0.003$), between students who use them every day of the week ($\bar{x} = 3.90$; $sx = 1.72$) and those who do not ($\bar{x} = 4.35$; $sx = 1.58$); in skill ($z = -3.63$; $p = 0.000$), between those who use them every day ($\bar{x} = 4.82$; $sx = 1.87$) and those who do not ($\bar{x} = 5.50$; $sx = 1.92$). Hence, findings reveal that the best results in the knowledge and skill tests are achieved by those who do not use social networks every day.

Regarding the analysis of digital competences in this area of communication, significant differences were found in interacting through technologies ($z = -3.54$; $p = 0.000$), between those who use social networks every day ($\bar{x} = 1.49$; $sx = 0.87$) and those who do not ($\bar{x} = 1.76$; $sx = 0.77$); in sharing information and content ($z = -2.39$; $p = 0.02$), between those who make greater use of them ($\bar{x} = 1.32$; $sx = 0.83$) and those who use them less frequently ($\bar{x} = 1.49$; $sx = 0.77$); and in netiquette ($z = -5.37$; $p = 0.000$), between those who connect every day ($\bar{x} = 1.53$; $sx = 1.01$) and those who do so to a lesser extent ($\bar{x} = 2.03$; $sx = 0.93$). In all cases, the students who do not use them seven days a week obtained significantly better results.

5. Discussion

In recent years, different studies analysed the digital competence of teachers and students taking the European Digital Competence Framework as a basis (DigComp), and almost always focusing on more than one or all of the competence areas [61–67]. Research was also conducted on the influence of social and personal variables such as gender, age, digital-device ownership, and activities performed using technology on the level of digital competence [68–72]. However, there are no studies on the impact of online communication and the use of social networks on the level of digital competence in the area of communication of students aged 12–16.

Students' level of digital competence in this area qualifies as a pass (or foundation level) in knowledge and skill. These results are consistent with the findings of other studies that also assessed this competence area in Spanish basic-education students [14,16], but disagree with studies that claim that Peruvian secondary-education students achieved adequate results in the addressed digital competences (interacting through technologies, sharing information and content, collaborating through digital channels, netiquette, and managing digital identity) [17]. In the attitude dimension, assessments proved to be very positive, which is in line with the results of other studies [73–75]. These findings lead to the rejection of the first and second suggested hypotheses.

Regarding the influence of the frequency of use of online communication with friends on students' competence level, significant statistical differences were found in the dimensions of knowledge and skill. Students who do not communicate so often achieved better results.

Considering the digital competences encompassed by communication, only two revealed significant differences: interacting through technologies and netiquette. Students who do not engage in online communication with friends every day achieved better results.

Regarding the influence of the frequency of social network use variable on competence level, statistically significant differences appeared in the dimensions of knowledge and skill in favour of those who do not use them every day.

In relation to digital competences, significant differences were found in three: interacting through technologies, sharing information and content, and netiquette. In all, students who use social networks less showed greater digital competence.

Variables corresponding to the frequency of use of online communication with friends and the use of social networks lead to the rejection of the third posed hypothesis.

In the online communication and social-networking area of study, several published studies provide evidence that both improve communication skills [43,44]. Moreover, they contribute towards vocabulary acquisition and training in writing [47,48], and improve argumentation and discussion abilities [50]. Nevertheless, where the e-communication area

of study is concerned, and as proven in this research, engaging in online communication with friends and using social networks does not improve digital skills.

Online communication and social networking may be helpful for teenagers to identify through message exchanges with friends and by sharing content of interest with their followers [23,24], but not to improve their level of digital competence in the area of communication as defined by the DigComp model. These competences could require a more specific and structured type of learning that young people do not acquire in an autonomous manner.

There are also studies that conclude that, although social networks are information and communication resources for students, their use may result in dependency [76–78] and negatively impact their academic performance [42,79,80]. Furthermore, the findings of this study showed a negative influence on the development of digital communication.

Similarly, certain studies note that social networks clearly define the development of the digital identity of students aged 12–16 [14]. However, according to this research, these young people do not have enough knowledge and skills to manage their digital identity.

Lastly, although the results of this study are the product of thorough quantitative analysis of the collected data, it would be very interesting to supplement it with qualitative data that may complete and further develop the reported findings.

6. Conclusions

This research analysed the level of digital competence in the area of communication of Spanish basic-education students (aged 12–16), examining whether online communication with friends and the use of social networks impact it.

The aim of the study was to contribute scientific evidence to a research area that remains underdeveloped. Understanding whether online communication and the use of social networks defines young people's level of digital competence in the area of communication is key to guide institutional decisions and educational policies aimed at the development and assessment of digital competence.

Although the attitude towards digital communication of students in the 12–16 age range is strongly positive, their level of knowledge and skills is only basic. This is a matter of concern if we bear in mind that the use of digital devices to communicate online through social networks is one of the activities in which these young people most frequently engage. It is also worrying that this datum surfaces in the context of the current healthcare crisis resulting from COVID-19, where digital competence is no longer an option but a necessity.

Against what collective thinking could expect, using online communication with friends and social networks very frequently does not improve these students' digital competence at neither the conceptual nor the procedural level. It could also be detrimental to the development of specific digital competences such as interacting through technologies, sharing information and content, collaborating through digital channels, or managing digital identity.

These results are by no means surprising. They validate our hypothesis that Spanish students aged 12–16 lack adequate digital competence in the area of communication. Indeed, these young people are skilled at using different technological devices to meet needs that are mainly related to interpersonal interaction, being connected, and friendships because of their need to communicate, share their feelings and emotions, and project their personal image among their peers. However, their concerns are not focused on knowing how to adequately interact with digital devices, collaborate using digital channels, using technology to improve the environment, or learning how they should manage their digital identity.

Competence in digital communication involves far more than the use of technological devices to communicate with peers. It means learning to communicate in digital environments, sharing resources, establishing ties with others, collaborating through the use of digital tools, and participating and interacting in communities and social networks with intercultural awareness and respect.

In these times, when digital competence is a basic requirement, it is necessary to develop it as part of school curricula by including digital-literacy programmes either as independent modules or as a cross-curricular subject.

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