

## Article

# Evaluation of Online and Offline Communication Skills in Higher Education

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**Abstract:** This study explores the offline and online communication skills of students in higher education. A total of 402 bachelor's and master's students from different study programs participated in the survey, such as education sciences, philology, communication sciences, and public relations. The evaluation was based on the scale of online and offline communication skills, which included four components: sociability, emotion decoding, self-disclosure, and assertiveness. The Mann–Whitney nonparametric statistical method was applied to examine the potential differences between the online and offline communication skills of students for the assessed variables of sociability, emotion detection, self-disclosure, and assertiveness. The statistical data analysis led to the following results: significantly higher online sociability; significantly higher online assertiveness; significantly higher offline emotion detection; significantly higher offline self-disclosure; bachelor's students had significantly higher online skills than master's students; and there were many differences between the various fields of specialization.

**Keywords:** communication skills; offline; online; higher education; questionnaire



**Citation:** Cîrțiță-Buzoianu, C.; Tzafilkou, K.; Măță, L.; Amălăncei, B.-M. Evaluation of Online and Offline Communication Skills in Higher Education. *Sustainability* **2022**, *14*, 17039. <https://doi.org/10.3390/su142417039>

Academic Editor: Diego Monferrer

Received: 22 November 2022

Accepted: 9 December 2022

Published: 19 December 2022

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## 1. Introduction

Investigating online communication skills, along with offline ones, has become a primary objective, as a result of the expansion of the new form of communication in academic environments, due to the increasingly frequent use of social networks. Exploring them, especially in the educational sector, is important because communication between teachers and students contributes to improving the learning experiences and creating a positive configuration [1]. According to the Handbook of communications skills [2], the evaluation of competence must take into consideration the implementation of three main sets of skills: cognitive, technical, and communication. This “triade of skills” must be complete in order to achieve a certain level of competencies, i.e., the knowledge base of a profession, specialized practical techniques, which are essential to the profession, as well as the ability to interact effectively with the public. Nowadays, professional skills must be developed together with communication skills in order to gain personal and professional success. Therefore, excellent standards in communication skills, particularly oral skills, improve them significantly. Oral communication and presentation skills are considered some of the best career enhancers and the biggest factors in determining a student's career success or failure [3]. The skills related to emotional intelligence, public speaking, and social interactions have become important in the professional development process. On the other hand, written communication skills involve critical thinking and problem-solving.

Effective communication skills involve one clearly expressing his/her opinion and accepting the other person's opinion [4]. The optimal environment to train communication skills will include facilitating experiential learning contexts, self-direction, and

self-reflection [5]. It is important that universities offer specific activities to develop students' communication skills, so they can adapt to the challenges of the globalized world [6]. Thus, communication is an essential component in the academic learning process, both in a face-to-face context and in online activities. Vlachopoulos and Makri [7] pointed out that "it is vital to use effective models of online communication to empower students and avoid negative experiences". In the new context of online teaching, it is important to develop skills for virtual communication, but also for real interaction [8]. The shift to exclusive online teaching and learning has affected the educational process and communication between students and teachers. Timely interactions and communication between students and teachers are becoming essential conditions in online teaching [9]. Teachers must face four major challenges of online education in order to teach successful courses and enhance their professional development [10]; they must demonstrate pedagogical skills in the online classroom, practice managerial roles, establish relationships with students, and provide technical support. Even if students are not digitally competent, the fact that they are "digital natives" [11] facilitates the transition to online education and helps them adapt more easily compared to teachers.

The distinction between offline and online communication skills has emerged with the creation of new ways of learning both in the academic environment and in the university education system. In terms of face-to-face courses, which involve offline communication skills, teachers have the advantage of having students in the same space at the same time, providing a multitude of opportunities and options for teacher–student and peer interaction [12]. In online courses that require new communication skills, teachers focus exclusively on technology to facilitate interactions [13]. Clearly, researchers and educators need to consider whether or not students are ready to communicate online, and how they can best support them to facilitate interaction. The purpose of the present study is to determine whether there is a difference between offline and online communication skills in students.

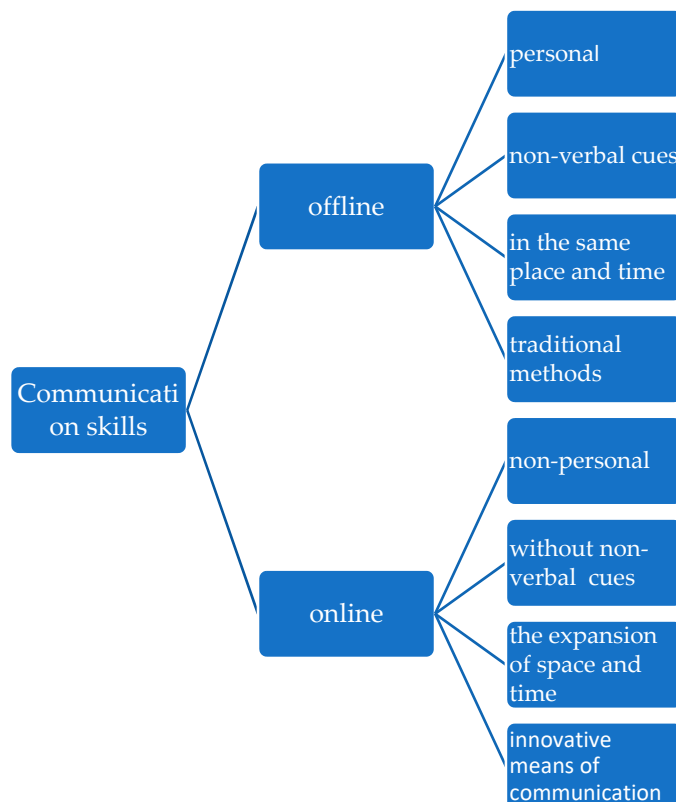
## 2. New Approaches in Online and Offline Communication Skills in Higher Education

### 2.1. Types of Communication Skills

Interpersonal communication is essential for building social networks, helping people establish social trust, and enhancing their sense of belonging and happiness [14]. The core communication skills are various [2], and include nonverbal behavior, questioning, reinforcement, explaining, self-disclosure, listening, humor and laughter, and persuasion. A communication skill represents the ability of a student to learn at the level of oral communication, written communication, and presentation [15]. Effective communication skills refer to appropriate listening and responding behaviors that facilitate relationships between people [16]. Online communication refers to the ability of people to engage in the act of transmitting information without establishing face-to-face interactions [17]. The purposes of online communication are multiple and can be grouped into five categories [18]: entertainment, maintaining relationships, social compensation, social inclusion, and meeting people. Metaphorically, we can suggest that online communication is similar to "Inside the Box", while offline communication is "Outside the Box". "Inside the Box" means we are under control, while "Outside the Box" exposes us in front of others. While online communication is a specialized type, predominantly technical and standardized, offline communication is creative and socio–emotional.

Face-to-face communication is synchronic because it occurs when the sender and receiver are in the same place at the same time [19]. This form of communication allows both the sender and receiver to notice cues, such as facial expressions and tone of voice, thus adding context to the verbal message. In online communication, the sender and the receiver do not have to be in the same place at the same time, which allows overcoming the barriers that are inherent in face-to-face communication. Bognar and Matijević [20] differentiated personal communication, which refers to communication between two or more people, and non-personal communication, which refers to communication mediated by a technical

environment. If traditional methods of communication, such as letters, telegraphs, and phone calls are specific in the offline environment, innovative means of communication, such as video meetings, are used in the online environment [21]. Online communication involves greater control over self-presentation, greater anonymity, lower perceived social risk, a more intimate and intense self, less disclosure, and social responsibility to others compared to traditional face-to-face communication [22]. Virtual communication allows the expansion of a face-to-face space, which makes students the biggest consumers of online communication [23]. A representation of the essential aspects of offline and online communication skills is shown in Figure 1.



**Figure 1.** The essential aspects of offline and online communication skills.

The process of communicating with students online requires more planning than communicating with students face-to-face [1]. The main advantage of face-to-face communication is that the teacher can use body language and facial expressions to convey the message to the students. Non-verbal cues help the teacher to adapt the teaching to best suit the students' needs [24]. In the case of online communication, there is no opportunity for teachers to use body language to help students interact. Online communication lacks the natural nonverbal and expressive cues that are present during a physical face-to-face social interaction [25]. However, online communication provides benefits to the teaching–learning process in academia because it creates real interaction between students and teachers and contributes to the dissemination and rapid access to information [26]. Virtual communication helps students and teachers connect and stay in touch with colleagues [17]. The students have the opportunity to communicate online with the help of the internet to strengthen the relationships they have already established with friends in the real world [27]. Along with the benefits that online communication offers, the long-term effects should also be noted. Online communication may reduce or regulate social anxiety in the short term [28], but in the long term, confidence to communicate with others beyond the online context may be undermined if successful online interactions are attributed to anonymity, rather than personal attributes. Knowing the benefits and shortcomings of the

two forms of communication is important to determine how to effectively interact with students online.

## 2.2. Current Studies Focused on the Investigation of Online and Offline Communication Skills

Research studies focused on investigating the attitudes toward online communication among students are increasingly becoming common as they use the internet and social networks. While previous studies have focused on the assessment of offline communication skills, recent studies include online communication in the academic environment into focus.

Ceyhan [16] conducted a study on the academic environment to check whether communication skills perceived by students are different in relation to the main purposes of using the internet. Research results demonstrate that students need effective communication skills to establish effective interpersonal relationships with others. Ohi and Doig [29] investigated the preferred online communication modes of higher education students. Regarding the type of feedback provided in online communication, the results of a study [30] show that participants received negative feedback more than in face-to-face communication. A previous study investigated the balance between professional and personal skills by making semi-structured interviews with employers from different sectors [31]. The interviews revealed a multitude of aspects regarding motivational skills and logical thoughts: critical approach, active listening, assertiveness, proactive attitude, creativity, adaptability, responsibility, team ability, analysis, and synthesis. Vlachopoulos and Makri [7] conducted qualitative research to explore the multidimensional aspects of communication in online learning environments in distance higher education and the different forms of interaction involved. The aim of another study proposed by Kaufmann and Vallade [12] was to identify the elements of interaction for which students are better and less prepared when communicating with their instructor and peers in an online class. Liao et al. [5] conducted qualitative research using semi-structured interviewing to explore the experiences of 26 healthcare students. They highlighted how to teach person-centered communication skills through the use of technology-enhanced pedagogy. Yang and Kim [32] conducted a quasi-experiment to develop online communication skills in fourth-year nursing students. The experimental group showed significantly higher levels of communication skills compared to the control group after completing the training program. Some studies [33–35] brought into focus the ethical issues involved in online communication between students and teaching staff in the university environment. Vonkova et al. [36] investigated the (in)comparability of self-reports of online communication skills between two contrasting groups of students: elite, high-performing schools, and economics schools. The purpose of the study by Hurajova et al. [37] consisted of investigating the attitudes and perceptions of university teaching staff in the field of media and communication studies regarding the communication strategies used to ensure the sustainability of the education system during the pandemic.

Some studies [17,28,38–40] aimed to measure the correlations between online communication preferences and social skills and different personality dimensions. According to the results, the participants who preferred online communication were perceived as less socially skilled than those who preferred face-to-face interactions. Online social interaction is preferred by people who lack self-presentation skills, which may lead to increased compulsive internet use, causing negative effects [38]. A lack of social skills could predispose an individual to develop a preference for online communication. A moderate positive association was also found between the preference for online social interaction and the desire to meet people, express feelings, and opinions.

There are very few studies [41] that have focused on investigating the online and offline communication skills of students, which can represent a real challenge in the research approach. It has been found that the studies focusing on university students who are studying to be future teachers are very limited [42].

### 2.3. Research Objectives

The basic aim of this research is to identify the differences between online and offline communication skills in students. Moreover, this research analyzes the differences in online and offline communication skills between students of different residence environments, educational levels (bachelor's, master's), and specialization fields. Furthermore, differences will be examined between students preparing for the teaching profession and those of students who are not participate in a psychopedagogical training program.

Overall, the study outlines the following research objectives:

- To examine the students' levels of online and offline communication skills;
- To compare the differences in students' communication skills between online and offline types of delivery.

To examine the differences in online and offline communication skills among different groups of students according to their characteristics of (i) residence environment, (ii) education level, (iii) specialization field, and (iv) preparation for the teaching profession.

## 3. Methodology

### 3.1. Instrument and Measured Constructs

The instrument was based on the scale of Mantzouranis et al. [41], who suggested a set of items to measure the following constructs of online and offline communication skills: (a) sociability, (b) emotion decoding, (c) self-disclosure, and (d) assertiveness. The scale was chosen because of its comprehension in terms of online and offline dimensions, essential for the communication skills of adolescents and young adults. Furthermore, the suggested scale quantifies the relationships between offline social skills and the online counterparts. The scale was developed by the authors on a sample of 657 adolescents and young adults, indicating high levels of validity.

The items of the validated version of the scale were applied in the current study, to identify online and offline communication skills for each one of the above-mentioned constructs. Four items were removed from the initial scale to make the questionnaire shorter and more engaging for the students. The Cronbach's alpha tests indicated internal consistency ( $\alpha > 0.6$ ) in the measured constructs for the examined dataset of students. Table 1 depicts the structure of the instrument that was applied in the study.

**Table 1.** Structure of the questionnaire.

Variable	Item	Item Description
Online Sociability	ONS1	When I am online, I prefer to talk publicly with many people at a time, rather than staying with a few people.
	ONS2	I really like to increase my circle of friends on the Internet.
	ONS3	On the Internet, when I meet people I find interesting, I suggest them to do other online activities (e.g., exchanging photos or participating in competitions).
	ONS4	On the Internet, I often propose to several people I know to meet together in a private system (e.g., in a group chat).
	ONS5	On the Internet, I often invite people to do certain activities (e.g., games, participate in a discussion group, Facebook tests, etc.).

Table 1. Cont.

Variable	Item	Item Description
Online Emotion Decoding	ONED1	When I am online, I can easily identify the emotions of the other Internet users.
	ONED2	When a person is sad online, I immediately realize it, even if he tries to hide it.
	ONED3	When I talk with someone online, I also pay attention to the emoticons they use.
	ONED4	When someone is angry on the Internet, I can easily see that.
Online Self-disclosure	ONSD1	When I chat on the Internet with a close acquaintance, I can easily tell them things I'm ashamed of.
	ONSD2	When I communicate online, I tend to write very long texts.
	ONSD3	I can easily express my emotions when I chat online.
	ONSD4	Through the Internet, I can easily tell a friend about things that make me anxious or frighten me in secret.
Online Assertiveness	ONA1	When I chat online with friends, I don't give my opinion if it is different from other people.
	ONA2	On the Internet, if I don't agree with someone, I say so without any problems.
	ONA3	The people I talk to online consider me as someone who knows how to assert himself.
Offline Sociability	OFS1	I really enjoy getting to know new people.
	OFS2	People say that I have a lot of friends.
	OFS3	I prefer to spend time with a large group of friends rather than a group of two or three people.
	OFS4	When I have just met a person, I often ask or suggest activities (e.g., going for a coffee, talking about a specific topic).
	OFS5	I often suggest doing new things to people I have just met and who I find interesting and appealing.
Offline Emotion Detection	OFED1	When I talk to someone, I also pay attention to their body language
	OFED2	When someone is sad, I see it immediately, even if he tries to hide it.
	OFED3	When someone is angry, I can see that easily.
	OFED4	I am good at identifying other people's emotions.

**Table 1.** *Cont.*

Variable	Item	Item Description
Offline self-disclosure	OFSD1	Sometimes, I have trouble hiding my emotions, even if I try.
	OFSD2	I often tell a close acquaintance about things about myself that I am ashamed of.
	OFSD3	I often tell my close friend things that I am secretly afraid of or that make me nervous.
	OFSD4	I rarely share my emotions.
Offline Assertiveness	OFA1	When I disagree with someone I respect, I say so.
	OFA2	In general, my friends consider me as someone who knows how to assert himself
	OFA3	When I am with my friends, I do not express my opinions if they are different from those of others.

### 3.2. Participants and Procedure

The participants in the study were bachelor's and master's students at the Vasile Alecsandri University of Bacău. The sampling approach was based on the convenience techniques [43], and a total of 500 students were invited through email to participate in the study. The emailed invitation included a link to the online form of the instrument and a set of sociodemographic questions. A total of 402 students successfully completed the questionnaire. The vast majority of the participants were women (90%), aged between 19 and 25 years old (43%). There was an approximate equal distribution between residence environments since 60% of the students came from urban environments and 40% came from rural environments. Most participants were bachelor's-licensed students (75%), and fewer were at the master's level (25%). Moreover, most replied that they had been preparing for the teaching profession (76% vs. 24%).

The students came from four different educational fields of specialization, depicted in Table 2. As depicted, the majority came from educational science and philology fields.

**Table 2.** Students' fields of specialization.

Specialization Field	Frequency	Valid Percent (%)
Education sciences	138	34.3
Philology	134	33.3
Communication and public relations	63	15.7
Sciences	67	16.7
Total	402	100.0

### 3.3. Data Analysis

The test of normality revealed that the data were not normally distributed ( $p < 0.05$ ). In particular, the normal distributions of the data were not met in the measured variables for most of the categorical variables, including type of communication (online, offline), gender, educational level, teaching preparation, and specialization. Table 3 depicts the normal distribution results for the measured variables of communication skills across the two types of delivery (online and offline). Table 3 depicts the results of the normality test on the four constructs across the two types of communication skills (online, offline).

**Table 3.** Normality test results in the measured constructs across online and offline types of delivery channels.

	Type	Kolmogorov-Smirnova			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Sociability	Online	0.113	402	0.000	0.970	402	0.000
	Offline	0.093	402	0.000	0.989	402	0.004
Emotion Detection	Online	0.069	402	0.000	0.987	402	0.002
	Offline	0.116	402	0.000	0.968	402	0.000
Self-disclosure	Online	0.089	402	0.000	0.983	402	0.000
	Offline	0.101	402	0.000	0.981	402	0.000
Assertiveness	Online	0.153	402	0.000	0.958	402	0.000
	Offline	0.159	402	0.000	0.956	402	0.000

The Mann–Whitney nonparametric statistical method was applied to examine the potential differences between the online and offline communication skills of students for the examined variables of sociability, emotion detection, self-disclosure and assertiveness. Similarly, the Mann–Whitney test was applied to examine differences between student populations according to their educational level (license, master’s) and teaching preparation experience (yes, no). A Kruskal–Wallis test was conducted to look for significant differences within specialization-related groups. Gender and age comparisons were not performed in the study because of the unequal sizes in the sample.

### 3.4. Ethical Considerations

The study was approved by the University Ethics and Professional Deontology Commission of Vasile Alecsandri University of Bacău, Bacău, Romania. Written consent was obtained from all students; participation was completely voluntary. To ensure anonymity in the collected dataset, all survey data were collected anonymously and kept confidential.

## 4. Results

### 4.1. Descriptive Statistics

Table 4 depicts the results of our statistical analysis of the students’ communication skills in each of the four constructs (sociability, emotion detection, self-disclosure, assertiveness) for both types of online and offline deliveries. Overall, students reported medium and low levels of communication skills (around 2.50–3.00/5.00) across all domains. Self-disclosure received the highest score, while assertiveness received the lowest. Table 5, shows the students’ communication skills in each type of delivery (online, offline) separately.

**Table 4.** Descriptive statistics of students’ mean communication skills in both online and offline types of delivery ( $n = 402$ ).

Construct	Mean (1.00–5.00)	Std. Deviation
Sociability	2.6213	0.70189
Emotion detection	2.6895	0.70527
Self -disclosure	3.1152	0.60755
Assertiveness	2.5041	0.65120

**Table 5.** Descriptive statistics of students’ communication skills in online and offline types of delivery ( $n = 402$ ).

	Mean (1.00–5.00)	Std. Deviation
Online skills		
Sociability (ONS)	2.4500	0.70346



**Table 5.** *Cont.*

	Mean (1.00–5.00)	Std. Deviation
Emotion detection (ONED)	2.9042	0.79047
Self-disclosure (ONSD)	3.0448	0.60715
Assertiveness (ONA)	2.5978	0.77575
Offline skills		
Sociability (OFS)	2.7927	0.75262
Emotion detection (OFDE)	2.4747	0.69976
Self-disclosure (OFSD)	3.1855	0.70446
Assertiveness (OFA)	2.4104	0.68663

#### 4.2. Differences between Online and Offline Communication Skills

Tables 6 and 7 show the results of the statistical analysis conducted to determine whether there were significant differences in students' communication skills between the online and offline types of delivery. As depicted in Table 6, there were significant differences in all four constructs ( $p < 0.05$ ). In particular (see Table 7), students indicated significantly higher offline communication skills in sociability and assertiveness, while emotion detection and self-disclosure were rated higher in the online mode.

**Table 6.** Significant differences between online and offline constructs (Mann–Whitney test,  $n = 402$ ).

	Sociability	Emotion Detection	Self-Disclosure	Assertiveness
Mann-Whitney U	58,330.000	54,297.500	72,385.500	70,052.000
Wilcoxon W	139,333.000	135,300.500	153,388.500	151,055.000
Z	−6.850	−8.089	−2.574	−3.305
Asymp. Sig. (2-tailed)	0.000 *	0.000 *	0.010 *	0.001 *

\* Correlation is significant at level  $p = 0.05$ .

**Table 7.** Mean ranks of the online and offline communication skills constructs ( $n = 402$ ).

Construct	Type	Mean Rank	Sum of Ranks
Sociability	Online	346.60	139,333.00
	Offline	458.40	184,277.00
Emotion Detection	Online	468.43	188,309.50
	Offline	336.57	135,300.50
Self-disclosure	Online	381.56	153,388.50
	Offline	423.44	170,221.50
Assertiveness	Online	429.24	172,555.00
	Offline	375.76	151,055.00

#### 4.3. Differences among Groups of Students

The study conducted a group-based analysis between students of different characteristics regarding their residence environment, educational level, specialization, and preparation for the teaching profession. As depicted in Table 8, significant differences mainly occurred between bachelor's and master's students, where bachelor's students expressed higher mean ranks in the constructs of online and offline sociability and emotion detection, online assertiveness, and offline self-disclosure.

Regarding the residence environment, only one difference emerged in the construct of online assertiveness, where students from rural environments indicated significantly higher ranks. Regarding the specialization field, students in the fields of communication and public relations expressed significantly higher ranks in the constructs of online sociability and offline emotion detection, while the lowest ranks were indicated by students in educational sciences and philology.

**Table 8.** Significant differences among groups of students.

	ONS	ONED	ONSD	ONA	OFS	OFED	OFSD	OFA
Grouping variable: residence environment (urban. rural)								
Mann-Whitney U	18,250.50	18,940.50	19,245.50	16,693.00	18,346.00	18,856.00	17,906.50	18,998.00
Wilcoxon W	31,945.50	32,635.50	32,940.50	44,896.00	32,041.00	32,551.00	46,109.50	47,201.00
Z	−1.142	−0.537	−0.270	−2.523	−1.057	−0.612	−1.445	−0.491
Asymp. Sig. (2-tailed)	0.254	0.592	0.787	0.012 *	0.291	0.541	0.149	0.624
Grouping variable: education level (bachelor's. master's)								
Chi-Square	4.161	7.915	2.111	9.678	5.376	8.278	9.287	0.371
df	1	1	1	1	1	1	1	1
Asymp. Sig.	0.041 *	0.005 *	0.146	0.002 *	0.020 *	0.004 *	0.002 *	0.543
Grouping variable: specialization (education science, philology, communication and public relations, sciences)								
Mann-Whitney U	12,726.00	11,961.00	13,311.50	11,686.00	12,448.500	11,903.00	11,733.00	14,147.50
Wilcoxon W	17,479.00	16,714.00	18,064.50	16,439.00	17,201.50	16,656.00	16,486.00	18,900.50
Z	−2.040	−2.813	−1.453	−3.111	−2.319	−2.877	−3.047	−0.609
Asymp. Sig. (2-tailed)	0.041 *	0.005 *	0.146	0.002 *	0.020 *	0.004 *	0.002 *	0.543
Grouping variable: preparation for the teaching profession (yes. no)								
Mann-Whitney U	12,442.50	14,166.00	14,223.50	13,344.50	13,533.00	13,087.50	13,257.00	14,355.50
Wilcoxon W	58,802.50	60,526.00	60,583.50	59,704.50	59,893.00	59,447.50	59,617.00	60,715.50
Z	−2.187	−0.433	−0.376	−1.277	−1.076	−1.533	−1.360	−0.243
Asymp. Sig. (2-tailed)	0.029	0.665	0.707	0.202	0.282	0.125	0.174	0.808

\* Correlation is significant at level  $p = 0.05$ .

Finally, only one significant difference emerged between students who were prepared for the teaching profession and those who were not. Interestingly, students who participated in the training program expressed lower levels of online sociability, while all other constructs were not affected.

## 5. Discussion

While some research studies have highlighted positive attitudes toward offline communication, other studies have indicated positive attitudes toward online communication. The results of previous studies [44] indicated that face-to-face learning can be perceived more positively than online learning in terms of social presence, interaction, satisfaction, and overall quality. Even though online classes may be convenient in terms of saving time, both teachers and students find them less efficient and structured compared to classroom learning. According to research data carried out by Coman et al. [9], the students found the online educational process to be less valuable than traditional face-to-face process. The students preferred the use of e-learning platforms in combination with traditional face-to-face teaching–learning to facilitate the educational process.

There are also studies [29,45–47] that showed student satisfaction with online teaching and communication with teachers. The results of the research proposed by Juraković et al. [45] indicate the positive attitudes of students toward communicating with teachers in online teaching. The explanation behind these positive attitudes is related to the online teaching skills of university professors, as well as the digital skills and competence of students as a result of using social networks. Data from the study proposed by Ohi and Doig [29] highlight students' preferences for using asynchronous forms of digital communication compared to synchronous forms when given the choice. The results of the research carried out by Santos et al. [46] showed that applications that enable interpersonal communication as well as publishing and sharing technologies are preferred by students (in regard to communicating with their teachers).

The research data indicate a significantly higher degree of online sociability among university students. The results of another research [48] showed that online communication was used very frequently to talk with friends, even more often than offline. Online com-

munication is positively associated with the quality of relationships with other colleagues, which has great implications regarding socializing in the academic environment.

Moreover, the research data indicate a significantly higher level of online assertiveness among university students. The results of exploratory research by Baker and Jeske [49] showed that participants who engaged more frequently in online activities reported significantly higher levels of assertiveness.

The education level may be a determinant factor of student perceptions on online communication skills. For example, high school students report significantly lower levels of online communication skills [36]. The results of the current study revealed that undergraduate students expressed higher levels of online communication skills compared to postgraduate students. Although this does not align with previous findings [50], it can possibly be explained by the undergraduate students' younger ages. Data from one study [51] showed that younger students frequently engage in online communication compared to older students. The result can also be assigned to the unequal representation of students between the two groups of the educational levels.

Regarding the specialization field, previous studies [52] showed significant differences in students' online communication and collaboration skills, where students enrolled in the field of digital marketing indicated more positive attitudes. Similarly, in the current study, the students in the fields of communication and public relations revealed the highest levels of communication skills, compared to students from education sciences, philology, and sciences. Differentiated academic requirements are, therefore, relevant factors in student self-assessments of online communication skills.

In future research, approaches that combine qualitative and quantitative methods will be needed [53] to better understand the psychological characteristics of those who use online and offline communication in the academic environment.

The basic implications of this study aim to suggest the need to develop safe spaces for online interactions [48] to improve the quality of students' relationships with friends and colleagues in higher education. The implications of the research can be highlighted from the perspective of the high level of online assertiveness among students. The development of online communication skills among university students will help them practice assertive languages and behaviors in online educational activities in the academic environment. Another implication of the research concerns how students' communication skills influence the future process of efficient professional integration. According to Vonkova et al. [36], the underestimation/overestimation of online communication skills (by students) could affect their access to various jobs involving the use of information and communication technologies, as well as the effectiveness of educational decision-making. All of these implications show the importance of evaluating the online communication skills of university students, in order to identify the level of online assertiveness and sociability in the online environment at the group level.

## 6. Conclusions

The results in the current study revealed mixed outcomes, since students expressed higher levels of social skills in some online components (sociability and self-disclosure), as well as higher values in some offline components (emotion detection, and assertiveness). The most significant results of the research are the following: significantly higher online sociability; significantly higher online assertiveness; significantly higher offline emotion detection; and significantly higher offline self-disclosure. Bachelor's students had significantly higher online skills than master's students. Depending on the specialization, the students in the fields of communication and public relations revealed the highest levels of communication skills.

One limitation of the current research regards the generalizability of the results which might be limited in some cases because of unequal representations of students across some groups. This is why gender and age comparisons were excluded from the methodology; however, the low representation of master's students and of students not par-

ticipating in the teaching training program (almost 76% vs. 24%) might have affected the results in these comparative analyses. Future research should be conducted on a larger population of students with approximately equal representations regarding their socio-demographic characteristics.

**Author Contributions:** Conceptualization, B.-M.A. and L.M.; methodology, K.T. and L.M.; software, B.-M.A. and C.C.-B.; validation, K.T. and L.M.; formal analysis, K.T.; investigation, B.-M.A., L.M. and C.C.-B.; resources, C.C.-B.; data curation, K.T.; writing—original draft preparation, K.T. and L.M.; writing—review and editing, B.-M.A. and C.C.-B.; visualization, B.-M.A.; supervision, L.M.; project administration, K.T.; funding acquisition, C.C.-B. All authors have read and agreed to the published version of the manuscript.

**Funding:** This research was funded by the National Council for Higher Education, Romania, grant number CNFIS-FDI-2022-0208.

**Institutional Review Board Statement:** The study was conducted in accordance with the Declaration of Helsinki, and approved by the Institutional Review Board (or Ethics Committee) of Vasile Alecsandri University of Bacău, Romania (protocol code 35, 4 November 2022).

**Informed Consent Statement:** Informed consent was obtained from all subjects involved in the study.

**Data Availability Statement:** Not applicable.

**Acknowledgments:** All authors made equal contributions to this paper. The research was conducted at the “Performed” Research Center and GASIE Research Group at “Vasile Alecsandri” University in Bacau, Romania.

**Conflicts of Interest:** The authors declare no conflict of interest.

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