

Article

Evaluating Assertive Communication to Support Sustainable Online Teaching in Higher Education

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Abstract

Introduction: Assertive communication is a fundamental component of effective teaching, particularly in the context of the increasing shift toward online higher education. Despite its importance, there is a need for validated instruments specifically designed to assess assertive communication in online teaching environments. The present study aims to examine the psychometric properties and factorial structure of the Assertive Communication Scale in Online Teaching (ACSOT). **Methods:** The study involved 374 students from “Vasile Alecsandri” University of Bacău, Romania. An exploratory factor analysis (EFA) was conducted to investigate the factorial structure of the ACSOT. Correlational analyses were conducted to examine the relationships among the identified dimensions, and group differences were assessed by gender and age. **Results:** The exploratory factor analysis revealed a three-factor structure comprising expressiveness, communicativeness, and conflict management. Significant positive correlations were found among the three dimensions. Gender differences indicated that women demonstrated stronger conflict management skills than men. Age-related differences showed that older participants reported higher levels of assertive communication in terms of expressiveness and communicativeness compared to younger participants. **Conclusions:** The findings support the factorial validity of the ACSOT and suggest that the instrument is a reliable tool for assessing assertive communication in online teaching contexts. The identified gender and age differences underscore the importance of considering demographic variables when developing training programs designed to enhance assertive communication skills in higher education.

Keywords: assertiveness; communication; higher education; online teaching; sustainability



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1. Introduction

Online teaching has become a fundamental component of today’s education system [1]. Within this digital realm, personal and social adaptability skills are essential as students engage with different teaching and learning environments facilitated by digital tools and communication technologies [2]. Effective online learning requires a variety of personal and social competencies, including the perception of social support and assertive communication. Exploring assertiveness within academic contexts is becoming increasingly important, particularly given its role as a predictor of academic achievement (Radmila, 2019) [3]. Assertiveness serves as both a communication approach and a skill that can be learnt and acquired at various stages of life [4]. Online teaching facilitates communication

and interaction between students and teachers in higher education [5], allowing them to express ideas and seek clarification without disrupting the learning environment or disturbing other participants.

Given its relatively unexplored nature, the training and development of assertive communication skills within the online academic environment is imperative. Research suggests that assertive teachers play a pivotal role in enhancing student learning outcomes and satisfaction levels [6]. Therefore, teachers must identify innovative teamwork strategies to maintain levels of cooperation and assertiveness among the students engaged in online teaching and learning contexts in higher education. Proficiency in assertive communication skills empowers both students and teachers to navigate online interactions with sensitivity to others' emotions while expressing requests and criticisms thoughtfully, courteously, yet firmly.

Several benefits of assertive competence training at both personal and professional levels can be highlighted by enhancing psychological resources. Assertive communication involves the ability to interact effectively, openly express genuine feelings and thoughts, resolve issues independently or collaboratively, and cultivate personal skills [7]. Individuals able to communicate assertively can reassert rights to dignity and confidently face life's challenges by trusting their beliefs [8]. Assertive communication skills facilitate emotional and personal adjustment, effective social, academic, and general interpersonal relationships [9]. Embracing an assertive communication style allows individuals to express their ideas or opinions directly [10]. Moreover, it enables them to assert their own statements confidently without requiring external validation and to share their feelings, rights, and thoughts while respecting the boundaries of others [11]. Therefore, assertive communication fosters conditions favourable to enhanced self-awareness, for both oneself and others. Students equipped with assertive communication skills encounter less pressure from society and peers, thus generating positive effects. Additionally, assertive communication can improve time management skills, bolster self-esteem, and refine the ability to negotiate more effectively [12].

Simultaneously, assertive communication can increase individual motivation and improve academic results [13–15]. A deficiency in online communication skills can have a detrimental impact on self-esteem and harmony in social relationships. The challenges in communicating assertively in the online environment stem from various barriers, including the reluctance towards this way of communication and fear of disapproval or disagreement from others [7]. Through assertive communication, both students and teachers interacting online have the opportunity to make and implement choices and take responsibility for their actions. Consequently, assertive communication is indispensable in both face-to-face and online academic learning settings to maintain an optimal relationship.

Assertive communication is recognized as a critical component of successful teaching and learning, encompassing the ability to express one's thoughts and feelings openly, engage constructively with others, and respectfully manage conflicts. While assertive communication has been widely studied in traditional educational and organizational contexts, the literature reveals a notable gap in validated instruments tailored specifically for online higher education environments. Existing scales do not adequately capture the nuances of digital communication, such as asynchronous discussion, video conferencing, and other mediated interactions. This gap has important implications for both research and practice. Without a context-specific measurement tool, it is difficult to assess students' digital communication competencies, identify demographic differences, evaluate interventions aimed at improving online collaboration, or investigate the relationships between assertive communication and academic outcomes. Consequently, the development and validation of an online-specific instrument is essential for advancing both theoretical understanding

and practical applications. By validating a context-specific instrument and examining its relationships with demographic variables, the study provides both a theoretical contribution to understanding assertive communication in digital learning and a practical tool for enhancing online educational practices.

Despite the recognized importance of assertive communication in online learning, no validated tools exist to assess these skills in digital higher education contexts. Without such an instrument, it is difficult to evaluate demographic differences, design interventions to enhance communication, or explore relationships between assertive communication and academic outcomes such as engagement, collaboration, and conflict management. Therefore, addressing this gap is crucial for both theoretical advancement and practical application in online learning.

The novelty of this research lies in its assessment of students' online communication skills based on three defined components: expressiveness, communicativeness, and conflict management. The study also highlights differences and correlations between the constructs. The study provides useful insights into the components of assertive communication in online educational contexts and contributes to a better understanding of how to promote assertive communication in the online environment at the level of higher education.

2. Theoretical Framework for Assertive Online Communication

2.1. Current Perspectives on Assertive Communication

Assertive communication constitutes an integral aspect of daily interactions, involving the ability to express our emotions and needs to others without offending or hurting them. It embodies a set of behaviours and concepts, conveyed with empathy, without resorting to passivity or aggression. They lead to a climate of consensus and compromise, fostering effective cooperation and mutual benefit among the participants involved in the interaction. According to Vagos [16], assertiveness entails a bidirectional conduct that emphasises the importance of acknowledging the desires, thoughts, and feelings of both the sender and the recipient of assertive messages.

In terms of communication, assertiveness is about expressing one's viewpoint clearly and precisely, while respecting and considering others' opinions and feelings. This type of communication encourages reciprocal behaviour and leads to constructive and mutually beneficial win-win dialogues. Assertive communication is characterised by fluid expression, appropriate modulation of voice volume and word rhythm, direct eye contact, body relaxation, comfortable posture, confident yet natural gestures, and absence of verbal hesitations. Individuals who communicate assertively convey their thoughts directly, express their feelings and opinions clearly, even if they differ from others', adeptly give and receive compliments, ask and answer questions appropriately, respect their interlocutors' opinions, and allow them to express their feelings, both positive and negative. They can adapt to various contexts, respond effectively in any situation, and establish fruitful interpersonal connections.

According to Starling [17], assertive communication involves expressing oneself calmly and clearly through direct interaction without interruption, while avoiding mutual manipulation and favouring eye contact. Assertive communication is considered a transactional form of communication, involving respect for others. Baggio [18] describes assertiveness as a continuum between two extreme poles: passivity, represented by the absence of assertiveness and characterised by excessive agreeableness, and aggressiveness, marked by excessive hostility.

From a psychological viewpoint, assertive communication is rooted in the ability to express emotions and beliefs without undermining others' rights. Stanton notes [19], p. 9, that the characteristics of assertive verbal and non-verbal communication encompass

“clarity and accuracy of expression, naturalness, relaxed and sincere attitude, vocal qualities, pitch, intensity and volume, diction and accent, speech speed, eloquence of speech or narrative, effective use of pauses, etc.” Structurally, assertiveness comprises the following elements: cognitive elements related to communication and judgmental independence, affective elements concerning emotional stability, axiological elements associated with maturity and social adaptability, and conative elements reflecting confident behaviour [20]. The basic components of assertive communication are efficiency, the expression of feelings and emotions, and constructive criticism [21]. Figure 1 illustrates specific elements of these three components of assertive communication.



Figure 1. Main components of assertive communication.

At the higher education level, studies have focused on analyzing assertive communication skills among both students [22,23] and teachers [24,25]. Research on this topic indicates that interventions focused on developing assertive communication skills aim to reduce stress levels [26], enhance self-esteem and self-efficacy among women in academic environments [27], and improve job satisfaction [28]. Barida et al. [29] developed an innovative tool for assessing assertive communication based on cultural values to evaluate the abilities of students in the Yogyakarta-Central region. Romanian higher education researchers express concerns regarding the exploration of assertiveness [30–32].

2.2. The Role of Assertive Communication in Sustainable Online Teaching

Assertive online communication can also be defined as the ability to express feelings towards individuals engaged in various digital interactions without causing offense. The online teaching-learning process involves a range of digital media and technologies [33], incorporating elements such as graphics, text, sound, animations, and videos. In contrast to passive and aggressive communication styles, assertive online communication within the educational context signifies the ability to interact effectively, openly express real thoughts and emotions, tackle problems independently or collaboratively, enhance life skills, and comprehend shortcomings [7]. The absence of face-to-face interactions in the online educational environment leads to the lack of a positive setting for participants to adaptively engage with one another and with instructors [34]. The role of assertive communication in sustainable online teaching in universities is central, as it supports the quality of education, the well-being of educational actors, and the long-term viability of the teaching process. From a pedagogical perspective, assertive communication helps to clarify learning objectives and assessment criteria, reduce cognitive confusion and information overload, and maintain coherence between activities, content, and assessment. On a psychosocial level, assertive communication is what ensures the creation of a safe and respectful educational climate, reduces conflicts and passive-aggressive behaviors, supports teacher-student relationships based on trust, and facilitates dialogue, feedback, and the

expression of difficulties. At the institutional level, assertive communication is the one that optimizes time and resource management, reduces the volume of redundant messages and subsequent clarifications, supports clear policies regarding participation, evaluation, and academic ethics, and facilitates collaboration between teaching staff and administrative structures. Regarding the ethical dimension, through assertive communication, integrity is promoted, responsible digital behaviors are modeled, inclusion and respect for cultural diversity are supported, and active participation and critical dialogue are encouraged. Figure 2 represents the main benefits of assertive communication from the perspective of sustainable online teaching in academia.



Figure 2. Dimensions of sustainability in online teaching in academia.

Integrating Netiquette guidelines into teaching materials is crucial for improving the quality of online group discussions [35]. These guidelines establish acceptable norms for polite, tolerant, respectful, and harmonious interactions in online courses. There is a limited number of studies focusing on evaluating assertive communication in online environments at the academic level. While communicative styles (aggressive, passive-aggressive, passive, and assertive) on social media have been explored [36], research has also delved into students' willingness to communicate assertively in the online learning environment during the COVID-19 pandemic in higher education [37]. Additionally, a study conducted by Galinha & João [38] measured the levels of cooperation and assertiveness among students in Portuguese universities within the e-learning framework. However, Di Consiglio et al. [34] found that assertiveness is not typically assessed as an outcome of online interventions. The authors developed ComunicaBene, an Internet-based image-guided training programme aimed at fostering assertiveness among university students.

Assertive communication in online contexts is a skill that can be acquired or improved through practice. A series of recent studies has demonstrated the positive impacts of implementing training programmes on the development of assertive communication skills. Forbes et al. [39] propose sustainable communication strategies in online teaching in the form of an interpersonal and reciprocal approach. Nurmagandi et al. [40] showed the effectiveness of practising these skills in adolescents participating in online gaming. However, some studies have reported either inconsistent findings, with no significant effect observed [41], or improvements noted in specific communication skills without a corresponding increase in overall assertiveness levels [42]. There is a clear need for assertiveness

education, which can lead to enhanced communication skills, better management of interpersonal relationships, comfortable expression of feelings, and effective problem-solving abilities [43]. Notably, the absence of validated tools for measuring assertive communication skills in the online environment underlines the necessity for further research.

The transition from face-to-face instruction to online learning environments has significantly altered the dynamics of academic communication. Unlike traditional classroom settings, online education reduces the availability of nonverbal cues, delays immediate feedback, and relies heavily on written or technologically mediated interaction. These structural differences may influence how assertive communication is expressed and perceived. In online contexts, assertiveness may require greater clarity, explicitness, and self-regulation, as misunderstandings can arise more easily in the absence of direct interpersonal cues. From a psychological and educational perspective, assertive communication in online learning environments may influence students' academic engagement, collaborative efficiency, conflict management, and sense of belonging within the academic community. Despite its relevance, most assertiveness assessment tools were developed for general or face-to-face contexts, with limited attention to the specific demands of digital education. Therefore, investigating the structure and determinants of assertive communication in online higher education is both theoretically necessary and practically relevant for improving digital pedagogical practices.

2.3. Aim of the Present Study

The main objective of this research is to investigate the structure and determinants of assertive communication skills in online higher education and to validate a context-specific assessment instrument.

The research objectives (RO) are defined as follows:

RO1: to examine the factorial structure and psychometric properties of the ACSOT in an online academic context;

RO2: to analyze differences in assertive communication dimensions according to demographic and individual variables (gender, age, experience in online education, residence environment, and level of education).

3. Methodology

3.1. Participants

The study included 374 students enrolled at “Vasile Alecsandri” University of Bacău, Romania. Participants were recruited from multiple academic programs within the university, covering both undergraduate (Bachelor's) and graduate (Master's) levels of study. The majority of respondents were aged between 20 and 24 years (59.6%), reflecting the typical age range of undergraduate students. The sample was predominantly female (78.6%), which corresponds to the gender distribution characteristic of the academic fields represented in the study. In terms of educational level, 70.6% of participants were enrolled in Bachelor's programs, while the remaining participants were pursuing Master's degrees. The variable of degree level was included in the analysis to examine potential differences in assertive communication skills according to academic stage. Regarding residence environment, 60.4% of participants reported living in urban areas, while the remainder resided in rural areas. Participants indicated a mean duration of prior involvement in online education of 2.4 semesters ($SD = 1.06$), with a range between 1 and 4 semesters. This variable was considered relevant given that previous exposure to online learning environments may influence the development of assertive communication skills. Detailed sample characteristics are also provided in Table 1.

Table 1. Sample characteristics.

Age (n%)	Gender (n%)	Educational Level (n%)	Residence Environment (n%)	Duration (in Semesters) of Previous Participation in Online Course (n%)
20–24 (59.6%)	Female (78.6%)	Bachelor (70.6%)	Urban (60.4%)	1 (28.1%)
35–49 (35.85%)	Male (21.4%)	Master (29.4%)	Rural (39.6%)	2 (19.0%)
Over 50 (4.5%)				3 (36.6%)
				4 (16.3%)

3.2. Research Methods and Tools

A 22-item questionnaire was initially developed to measure assertive communication in online contexts. Items 1 and 8 were adapted from Lestari [44], while items 5, 7, 11, 12, 18, and 19 were adapted from Gaumer Erickson et al. [45]. Items 2, 3, 6, 10, 14, 15, 16, 17, 20 were adapted from Chalvin [46], and item 13 was adapted from Peterson & Miller [47]. Items 4, 9, 21, and 22 were newly developed. Notably, items 4, 12, 15, 17, and 18 were reverse-scored. The 5-point Likert scale was used, with responses ranging from 1 = “strongly disagree”, 2 = “disagree”, 3 = “neither agree nor disagree”, 4 = “agree”, and 5 = “strongly agree”.

3.3. Data Analysis

The dataset comprised responses from a sample of 374 students who participated in the survey. First, an exploratory factor analysis (EFA) was conducted to identify various dimensions of online assertive communication as measured by the questionnaire. However, the normality test conducted using Shapiro and Wilks revealed non-normally distributed data ($p < 0.05$) across the measured variables and examined participant groups of students. Consequently, non-parametric methods were applied to complete the analysis. Spearman’s Rho correlation test was used to assess the relationship between pairs of variables, while Mann–Whitney and Kruskal–Wallis were employed to define potential differences between student groups based on gender, age, environment, specialisation, and type of education.

3.4. Ethical Considerations

The study was conducted in accordance with internationally accepted ethical standards for research involving human participants. Before data collection, participants were informed about the purpose of the study, the voluntary nature of their participation, and their right to withdraw at any time without any academic consequences. Informed consent was obtained before the completion of the questionnaire. Participants were assured that their responses would remain anonymous and confidential. No identifying information (e.g., names, student ID numbers, IP addresses) was collected. The data were used exclusively for research purposes. To avoid any potential coercion, participation was not linked to course evaluation, academic credit, or other incentives. Students were informed that their decision to participate or decline would not affect their academic standing in any way. All data were stored on password-protected devices accessible only to the research team and handled in accordance with institutional data protection regulations. The study received approval from the Ethics Committee of “Vasile Alecsandri” University of Bacău (Approval No. 31/2/ /8 August 2023).

4. Results

4.1. Exploratory Factor Analysis and Internal Consistency

The Kaiser-Meyer-Olkin (KMO) analysis confirmed the sample’s adequacy (KMO = 0.904), and additionally, Bartlett’s Test of Sphericity ($=2386.965$; $p < 0.05$) revealed the data factor-

bility [48]. The Exploratory Factor Analysis (EFA) employing the Promax extraction method revealed three distinct components comprising 14 items (Table 2). These components collectively accounted for almost 60% of the variance. The final 14-item version retained the strongest indicators for each dimension, resulting in a scale that is psychometrically robust and interpretable (Appendix A). Cronbach's alpha coefficients for the three dimensions ranged from 0.648 to 0.720, indicating acceptable internal consistency and reliability. This refinement ensures that the ACSOT provides a reliable, valid, and concise tool for assessing assertive communication in online learning environments. The scale can be used both in research to explore relationships with demographic and educational variables, and in practice to inform interventions aimed at enhancing students' online communication skills.

Table 2. Extracted components from Exploratory Factor Analysis, factor loadings, and internal consistency values.

Item	Component			Cronbach Alpha
	1 (6 Items)	2 (4 Items)	3 (4 Items)	
I11	0.924			0.861
I14	0.820			
I20	0.764			
I5	0.751			
I8	0.526			
I18	0.514			
I1		0.995		0.798
I3		0.742		
I10		0.674		
I2		0.618		
I7			0.858	0.722
I9			0.718	
I13			0.638	
I6			0.523	

All final factor loadings surpassed the 0.5 threshold, indicating that the designated items constitute good measures for their respective factors [49]. The extracted components were interpreted into skill categories relevant to the research context as follows:

- Component 1: expressiveness (i.e., proficiency in expressing personal opinion);
- Component 2: communicativeness (i.e., adeptness in open and comfortable communication);
- Component 3: conflict management skills (e.g., encompassing emotional intelligence, self-regulation, neutrality).

Subsequently, the measurement model underwent validation for internal consistency, with all constructs exhibiting Cronbach alpha values above the accepted threshold of 0.7 [50].

4.2. Descriptive Statistics

Table 3 illustrates the central tendencies, variability, and score distribution across different factors, including means, standard deviation, medians, and quartiles. These results are presented for the entire sample, as well as for distinct student groups categorized by gender, education level, and environment. Table 3 presents the descriptive statistics for the three dimensions of online assertive communication across the total sample and demographic subgroups. Participants reported relatively high levels of assertive communication, with mean scores above the midpoint of the scale for all constructs. Among the three dimensions, conflict management recorded the highest mean score ($M = 4.295$, $SD = 0.519$), followed by expressiveness ($M = 3.863$, $SD = 0.720$) and communicativeness ($M = 3.828$, $SD = 0.648$).

Median values and interquartile ranges suggest a relatively homogeneous distribution, with most responses concentrated in the upper range of the scale.

Table 3. Descriptive statistics of online assertive communication constructs.

	Mean	Std. Deviation	Median (25–75%)
All (N = 374)			
expressiveness	3.863	0.720	4.000 (3.600–4.400)
communicativeness	3.828	0.648	3.750 (3.500–4.250)
conflict management	4.295	0.519	4.250 (4.000–4.750)
Gender = Female (N = 294)			
expressiveness	3.861	0.718	4.000 (3.600–4.400)
communicativeness	3.851	0.674	4.000 (3.500–4.250)
conflict management	4.330	0.518	4.250 (4.000–4.750)
Gender = Male (N = 80)			
expressiveness	3.870	0.732	4.000 (3.600–4.400)
communicativeness	3.742	0.533	3.750 (3.500–4.000)
conflict management	4.165	0.503	4.250 (4.000–4.500)
Education level = Bachelor (N = 264)			
expressiveness	3.825	0.735	4.000 (3.400–4.400)
communicativeness	3.810	0.660	3.750 (3.500–4.250)
conflict management	4.295	0.531	4.250 (4.000–4.750)
Education level = Master (N = 110)			
expressiveness	3.954	0.678	4.000 (3.600–4.400)
communicativeness	3.870	0.617	4.000 (3.500–4.250)
conflict management	4.293	0.490	4.250 (4.000–4.750)
Residence environment = Urban (N = 226)			
expressiveness	3.930	0.657	4.000 (3.600–4.400)
communicativeness	3.852	0.605	4.000 (3.500–4.250)
conflict management	4.316	0.495	4.250 (4.000–4.750)
Residence environment = Rural (N = 148)			
expressiveness	3.761	0.799	4.000 (3.400–4.400)
communicativeness	3.790	0.709	3.750 (3.500–4.250)
conflict management	4.262	0.553	4.250 (4.000–4.750)

Regarding gender differences, female students reported slightly higher levels of communicativeness ($M = 3.851$) and conflict management ($M = 4.330$) compared to male students ($M = 3.742$ and $M = 4.165$, respectively), whereas expressiveness showed nearly identical mean values across genders. Variability was comparable between groups. In terms of educational level, Master's students exhibited marginally higher mean scores in expressiveness ($M = 3.954$) and communicativeness ($M = 3.870$) compared to Bachelor's students ($M = 3.825$ and $M = 3.810$, respectively), while conflict management scores were nearly identical across levels of study. Differences according to residence environment indicate slightly higher scores among urban students across all three dimensions, particularly in expressiveness ($M = 3.930$ vs. $M = 3.761$). However, dispersion indices suggest moderate variability within both groups.

Overall, the descriptive results indicate consistently elevated levels of perceived assertive communication in online settings, with small variations across demographic categories. Across all participants, expressiveness, communicativeness, and conflict management were rated relatively high, with slight variations in means and standard deviations observed across different demographic groups such as gender, educational level, and residence environment. Unlike expressiveness and communication ability, which tend to have consistent mean scores across groups, conflict management shows slight variation. Therefore, individuals generally show similar levels of expressiveness and communicativeness

across demographics. However, there was some nuance in how conflict management skills manifested between communicativeness and conflict management, indicating that more communicative students also tend to demonstrate better conflict management skills.

4.3. Correlations and Differences

According to the results in Table 4, there are strong associations among the variables of expressiveness, communicativeness, and conflict management, suggesting that proficiency in one area tends to coincide with competence in the others. The results indicate statistically significant positive associations between all constructs ($p < 0.001$).

Table 4. Spearman's Rho correlations between constructs of online assertive communication.

		Expressiveness	Communicativeness	Conflict Management
expressiveness	Correlation Coefficient	1.000	0.618 **	0.575 **
	Sig. (2-tailed)	.	0.000	0.000
communicativeness	Correlation Coefficient	0.618 **	1.000	0.460 **
	Sig. (2-tailed)	0.000	.	0.000
conflict management	Correlation Coefficient	0.575 **	0.460 **	1.000
	Sig. (2-tailed)	0.000	0.000	.

** moderate-strong positive correlation between variables.

Expressiveness was strongly correlated with communicativeness ($\rho = 0.618$), suggesting that students who report greater clarity and openness in expressing their ideas also tend to perceive themselves as more capable of engaging effectively in online interactions. This result indicates that individuals who demonstrate higher levels of expressiveness tend to be more communicative, and vice versa.

A similarly strong positive relationship was observed between expressiveness and conflict management ($\rho = 0.575$), indicating that the ability to articulate thoughts and feelings clearly may be linked to more constructive handling of disagreements in digital contexts. According to this result, individuals with greater levels of expressiveness also tend to possess enhanced conflict management skills.

The correlation between communicativeness and conflict management was moderate ($\rho = 0.460$), further supporting the conceptual coherence of the three dimensions while also indicating that they represent related but distinct aspects of assertive communication.

Overall, the pattern of correlations supports the multidimensional yet integrative structure of online assertive communication, as the constructs are significantly interrelated without suggesting redundancy.

Analysis of student group differences revealed that women exhibit significantly higher levels of conflict management skills compared to men, while no discernible gender disparities were detected in communication and expressiveness. Regarding age, significant differences were found in expressiveness and communicativeness, with older age groups (25–49, >50) displaying heightened levels of assertive communication in contrast to their younger counterparts (20–34).

Remarkably, the data related to students' residence environment did not exhibit any important variations in the assessed constructs of online assertive communication. Equally noteworthy is the absence of significant discrepancies among students of varying levels of experience in online courses, as well as between Bachelor's and Master's degree students.

Table 5 illustrates the significant differences identified among various student groups. The Mann–Whitney U tests indicated that female students reported significantly higher levels of conflict management compared to male students ($Z = -2.526$, $p = 0.012$). No significant gender differences were observed for expressiveness ($Z = -0.210$, $p = 0.834$) or communicativeness ($Z = -1.744$, $p = 0.081$). These results suggest that, while overall assertive communication is comparable across genders, women may demonstrate a stronger ability to manage disagreements effectively in online contexts.

Table 5. Differences in online assertive communication constructs.

	Expressiveness	Communicativeness	Conflict Management
Grouping Variable:			
Gender			
Mann–Whitney U	11,581.500	10,277.000	9629.500
Wilcoxon W	54,946.500	13,517.000	12,869.500
Z	−0.210	−1.744	−2.526
Asymp. Sig. (2-tailed)	0.834	0.081	0.012 *
Grouping Variable:			
Age			
Chi-Square	13.833	10.073	0.575
Df	2	2	2
Asymp. Sig.	0.001 *	0.006 *	0.750

*. The difference is significant at the 0.05 level.

Kruskal–Wallis tests revealed significant age-related differences in expressiveness ($\chi^2 = 13.833$, $p = 0.001$) and communicativeness ($\chi^2 = 10.073$, $p = 0.006$), with older participants reporting higher levels in both dimensions. No significant differences were found for conflict management ($\chi^2 = 0.575$, $p = 0.750$). These findings indicate that experience and maturity associated with older age may contribute to greater confidence and clarity in expressing ideas and engaging with others in online learning environments.

Overall, the results from Table 5 highlight that demographic factors, particularly gender and age, are associated with specific dimensions of online assertive communication, whereas other constructs remain largely consistent across groups.

5. Discussions

This study aimed to develop and assess the psychometric properties of the ACSOT, a tool designed to evaluate assertive online communication within the Romanian educational context. The scale integrates 14 items, aligning with the current changes in online teaching in higher education. Through exploratory factor analysis, three key components were delineated: expressiveness, communicativeness, and conflict management skills. A related study by Montes de Oca [51] identified assertive communication dimensions more broadly, encompassing effective dialogue, constructive feedback, conflict resolution, and non-verbal communication.

The first factor, expressiveness, includes six elements that reflect the ability to engage in online discourse with teachers, even when in disagreement, to express personal opinions amid disagreement during online courses or with hostile interlocutors, and to confidently ask questions during online learning activities. Findings from research conducted by Eklund and Isotalus [1] underline the significance of relational communication in building trust, which is a pivotal pedagogical objective of online teaching. Additionally, insights from a qualitative study by Mansour et al. [52] showed that building self-confidence is a prerequisite for demonstrating assertive communication skills.

The second factor, communicativeness, encompasses four items, which assess individuals' ability to engage in interaction during online activities, as well as their capacity to express themselves in online courses to be socially accepted by their peers. Previous studies have shown the positive impact of teacher interaction and participant collaboration on satisfaction [53,54]. Furthermore, research suggests that online interaction facilitates learners' academic development [55] and serves as an essential catalyst for motivating learners to express themselves and enhancing their engagement in virtual learning environments [56,57].

The third factor, conflict management skills, integrates four items aimed at assessing individuals' ability to manage emotions when disagreements arise during online courses, recognize that conflicts are not to be taken personally, and demonstrate active listening without interrupting in online class discussions. According to the study conducted by Rahayu [58], the conflicts experienced by students during online learning often revolve around completing group tasks, encountering discriminatory attitudes, and acknowledging others' work without consent. Moreover, virtual professional development for educational leaders plays an important role in fostering effective conflict management [59]. Standardised online codes of conduct have been developed to manage students' online presence, mitigating conflicts and providing constructive approaches for resolving disagreements [60].

In terms of investigating differences in assertive online communication, there are few studies specifically focusing on assertiveness alone. Regarding gender, existing research suggests that men display higher levels of assertiveness compared to women [61]. Findings from a study conducted by Samfira and Dragoescu Urlică [33] highlight the disparities in assertiveness among pre-service teachers concerning gender, residence environment, and age. Urban respondents exhibited greater assertiveness levels than rural students, while male respondents showed higher assertiveness than female participants. Additionally, the results indicate that the level of assertiveness increases with age. However, Mollaoğlu and Alptuğ [62] found no significant gender differences in assertiveness among students. Data from our study show that expressiveness, communication, and conflict management received relatively high ratings across all participants, albeit with minor variations in means and standard deviations based on demographics such as gender, educational level, and area of residence.

Furthermore, other important results from our research indicate that there are strong associations between expressiveness, communicativeness, and conflict management. A significant positive correlation exists between expressiveness and communicativeness, as well as between expressiveness and conflict management, suggesting that individuals who exhibit higher levels of expressiveness tend to possess better communication and conflict management skills. The results of the study conducted by Akkaya and Tuzgöl Dost [63] show that the level of assertiveness of university students is closely associated with their personality traits. Additionally, another study [64] demonstrates a positive correlation between self-respect levels and assertiveness.

Other studies highlight the importance of investigating both online and face-to-face communication dynamics. The findings from Said et al. [37] indicate a preference among students for online communication over offline alternatives. Moreover, students report feeling at ease expressing their emotions, opinions, thoughts, and ideas online and tend to favour listening over speaking in online interactions. There is a call for further studies to examine the impact of different variables, such as the level of education, on assertive communication in online teaching. Furthermore, exploring potential correlations between the assertive online communication levels and personality traits, self-efficacy, or academic performance motivation could yield valuable insights.

These findings have important theoretical implications, highlighting that assertive communication manifests similarly in online and face-to-face contexts, but digital modalities may amplify certain dimensions, such as conflict management strategies. Practically, the results indicate that online course design and instructor interventions could be tailored to foster assertiveness, particularly among younger students and male participants. Future studies should investigate how these dimensions influence collaborative learning outcomes, engagement, and academic performance.

6. Conclusions

The present study provides the necessary theoretical framework for understanding the assertiveness component in online communication. Assertive communication is an essential mechanism of sustainable online teaching in higher education, contributing to the quality of the educational process, the well-being of students and teachers, and the institutional viability of digital education in the long term.

Through exploratory factor analysis, expressiveness, communicativeness, and conflict management skills emerged as key components. Participants consistently rated all three highly. Moreover, strong correlations among these variables indicate that proficiency in one area typically corresponds with proficiency in others. The availability of an assessment scale for assertive communication in online teaching with validated psychometric properties presents societal benefits by facilitating effective interventions to enhance assertive communication skills.

7. Limitations and Future Research

Several limitations of the present study should be acknowledged. First, the sample was drawn from a single university, which may limit the generalizability of the findings to other higher education contexts or cultural settings. The study relied on a convenience sample from a single Romanian university, which may limit the generalizability of findings to other higher education contexts, both nationally and internationally. The gender distribution was skewed, with females representing nearly 79% of participants, which could affect the interpretation of gender-related differences in assertive communication. Future studies should aim to recruit more balanced and diverse samples across multiple institutions and regions to strengthen external validity. Second, the study relied on self-reported measures, which may be subject to social desirability or response bias. Third, the cross-sectional design does not allow for causal inferences regarding the relationships between assertive communication dimensions and demographic variables. Finally, although some demographic differences were explored, other potentially influential factors, such as personality traits, prior communication training, or digital literacy, were not assessed.

Future research could address these limitations in several ways. Multi-institutional and cross-cultural studies would increase the external validity of findings. The findings should be interpreted in the context of Romanian academic culture, which may influence students' assertive communication behaviors. For instance, hierarchical structures in higher education, expectations regarding student-teacher interactions, and social norms around expressing disagreement or managing conflict may shape the way students communicate online. These cultural factors may partially explain the observed gender and age differences and should be considered when applying the ACSOT to other educational contexts. Longitudinal designs could provide insight into the development of assertive communication skills over time and their impact on academic and social outcomes in online learning. Additional variables, such as personality, motivation, or prior experience with digital communication tools, could be incorporated to better understand the determinants of assertive communication. Finally, intervention studies could test strate-

gies to enhance expressiveness, communicativeness, and conflict management in online educational contexts.

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Appendix A. Assertive Communication Scale in Online Teaching

Table A1. Items of the Assertive Communication Scale in Online Teaching.

Items	Factor
1. I like interacting during online learning.	communicativeness
2. I am not afraid to be criticised by others in online classes or to tell others what I think.	communicativeness
3. I can be myself in online classes so that I am socially accepted by my peers.	communicativeness
5. I voice my opinions in online classes, even if others disagree with me.	expressiveness
6. I know how to listen and not interrupt others when speaking in online classes.	conflict management
7. I manage to control my emotions when I disagree with someone during online courses.	conflict management
8. I dare to ask questions during online learning activities.	expressiveness
9. When it comes to a conflict of opinion in online classes, I can be aware that others do not have something personal with me, but that they do not share my point of view.	conflict management
10. I feel comfortable communicating online.	communicativeness
11. If I disagree with the teacher, I can talk in the online course about it.	expressiveness

Table A1. Cont.

Items	Factor
13. When someone points out a mistake I made in the online course, I see it as an opportunity to improve or correct my skills.	conflict management
14. When I disagree with something during online courses, I dare to say it and know how to make myself understood.	expressiveness
18. I sometimes avoid asking questions in online classes for fear that others might get a bad impression of me. *	expressiveness
20. I am not afraid of expressing my thoughts in online courses, even in front of hostile interlocutors.	expressiveness

* Inverted item.

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