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Research Article

Adaptation of communication styles inventory to Russian context

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ABSTRACT

Communication style refers to the distinct ways individuals exhibit verbal, paraverbal, and nonverbal communication patterns in social interactions. It involves receiving, interpreting, and delivering feedback and messages. Factors like culture and personality affect communication styles, and tools like communication styles inventory (CSI) help evaluate and improve individuals' communication skills. Cultural differences significantly impact communication styles, so it's important to adapt and validate measurement instruments for diverse cultural settings, such as adapting CSI for the Russian context. This study aims to adapt CSI for use in the Russian context. The research follows a quantitative approach, collecting data from 407 undergraduate and graduate students across different universities. CSI is a questionnaire assessing six distinct communication patterns with 96 items. The researchers conducted exploratory and confirmatory factor analyses to examine CSI's validity and reliability in the Russian context. The analyses yielded an eight-factor model explaining 59.5% of the total variance. Although two factors from the original scale were preserved, other factors were newly named. The confirmatory factor analysis tested the relationship between the original sub-dimensions and the new dimensions, resulting in a better-adapted model with significant relationships between items and factors. The findings indicate the scale's suitability for different cultures and sample groups, supporting its validity and reliability. Further research should adapt the scale to other cultures and utilize it in studies in the Russian context.

Keywords: adaptation of inventory, communication styles inventory, Russian

INTRODUCTION

What is Communication?

Communication is defined as the exchange of information or ideas between two or more parties (Rigotti & Rocci, 2006). It involves the transmission of information via verbal, nonverbal, written, and digital channels (Hancock et al., 2020). The communication context is crucial because it determines the constitutive conditions of the contextualized and influences the contextualized. Communicative competence is the ability to communicate effectively and promptly in each situation. It requires the integration of knowledge, reasoning, and abilities in a variety of disciplines, including linguistic, operational, social, and strategic (Light & McNaughton, 2014). Process of communication is intricate and serves various purposes and contexts. Fundamental elements of communication encompass sender of message, recipient of message, substance of the message, and the way the message is conveyed. Interplay between the constituent components engenders a dynamic process of communication that is in a state of perpetual flux (Kreitler, 2021).

What is Communication Style?

Numerous research endeavors have been conducted to explore the definition and extent of communication style. Communication style can be broadly defined as the way individuals exhibit their verbal and nonverbal communication patterns during interpersonal exchanges. Norton (1978, 1983) established that communication style refers to distinct and iterative modes of verbal and nonverbal exchange that are contingent upon an individual's role expectations. Norton's (1978, 1983) research delineated nine distinct communication styles and introduced the concept of "communicator image," which pertains to an individual's self-perception of their efficacy in communication.

The definition and classification of communication style have been refined through subsequent research. Hansford and Hattie (1987) conducted a study that drew upon Norton's (1978, 1983) research to establish five distinct dimensions of communication style, namely dominant, narrator, relaxed, lively, and attentive. Additionally, the study identified two quadratic factors, namely lively-dominant and supportive-attentive. Bolton and Bolton (1984) proposed a communication style model that is grounded in social behavior's fundamental dimensions of assertion and reactivity. Assertion is a metric that gauges an individual's display of self-assurance and dominance during communication, whereas reactivity pertains to the capacity to communicate one's emotional responses. Furthermore, Bolton and Bolton (1984) introduced an additional social dimension termed versatility, which pertains to the capacity to adapt one's style in accordance with the given circumstances.

According to de Vries et al. (2009),

> "… communication style as the characteristic way a person sends verbal, paraverbal, and nonverbal signals in social interactions denoting (a) who he or she is or wants to (appear to) be, (b) how he or she tends to relate to people with whom he or she interacts, and (c) in what way his or her messages should usually be interpreted.".

The definition focuses explicitly on interpersonal communication behaviors; it excludes intrapersonal communication behaviors, such as purely cognitive interpretations of other people's utterances or internal affective states as a reaction to these utterances (de Vries et al., 2009). The term "communication style" refers to collection of speech traits that an individual displays during process of communication. Style encompasses distinct methods of message reception, individualized interpretation of messages, articulation of responses, and provision of feedback. The way an individual organizes realm of social interactions can be inferred from their communication style. Also, the way communication is conducted is regarded as a gauge of an individual's comprehension of information and techniques employed to convert it (Pânişoară et al., 2015).

To summarize, communication style refers to distinctive manners in which individuals display verbal, paraverbal, and nonverbal communication patterns during social interactions. This style encompasses distinct methods of receiving, interpreting, and delivering feedback, the way response is articulated, and individuals' comprehension of their own identities and interpersonal connections, as well as general interpretation of their messages.

Which Factors Affect Communication Style?

Communication styles are not universal but adapt to different contexts. The determinants of communication style are found in both the communicator and the receiver. The communicator focuses on the motivation to communicate in the style of sharing or withdrawing (Kreitler, 2021).

Culture

When examining communication style, it pertains to the way individuals express themselves through verbal and nonverbal means during interpersonal interactions. Each society possesses distinct linguistic systems that serve as the fundamental means of interpersonal communication. The formation of these styles is influenced by cultural values. The presence of diverse cultures within a given society can impact communication styles. Hence, during social interactions, diverse communication styles are employed (Guo, 2020; Saleem, 2022). Communication styles are employed to ensure that messages are conveyed within a particular context. Hence, there exists an interdependent relationship between culture and communication, which can be comprehended within a particular context (Balc, 2018). According to Pânișoară et al. (2015), an individual's communication style is a manifestation of their speech characteristics and reflects their approach to processing and conveying information. The communication patterns of individuals are impacted by their social status. The interconnection between communication and social identity is a salient aspect. Investigating this correlation holds significance in comprehending human interaction (Mamzer, 2018). Different communication styles can lead to misunderstandings and misinterpretations between individuals from different cultural backgrounds (Guo, 2020).

There have been studies on the effect of culture on communication styles. Croucher et al. (2012), for instance, investigate the effect of culture on communication styles in high and low context cultures. Culture is an essential factor that reflects a society's values, beliefs, and norms, and it has a substantial impact on the communication styles of individuals. High-context cultures place a greater emphasis on context and nonverbal cues. In such cultures, indirect and discreet methods of communication are preferred over direct and explicit methods. In cultures with a high context, nonverbal cues such as body language, intonation, and situation convey meaning more frequently than spoken words. Therefore, social relationships and context are crucial in these cultures when communicating. High context cultures include the Arab, Japanese, and Chinese cultures, among others. Conversely, low-context cultures place greater emphasis on direct and frank communication. In these cultures, people strive to communicate as precisely as possible, employing more precise and unambiguous expressions. In low-context cultures, spoken words convey the majority of meaning and rely less on nonverbal indicators. The United States, Germany, and Scandinavian nations are examples of low-context cultures.

Hofstede's (1984) seminal research, titled "Culture's consequences: International differences in work-related values," represents a pioneering inquiry into the impact of national culture on work values and communication patterns. Hofstede (1984) conducted a comprehensive survey of IBM employees in 40 different countries, wherein he identified four primary cultural dimensions that have a significant impact on communication. These dimensions, which were later expanded to six, include power distance, individualism vs. collectivism, masculinity vs. femininity, and uncertainty avoidance. The dimensions serve to elucidate the discrepancies in communication styles that are contingent upon cultural factors, including but not limited to the degree of acceptance of hierarchical structures, emphasis on individual or collective objectives, allocation of gender roles, and capacity to tolerate ambiguity. The contributions of Hofstede (1984) have had a long-standing influence on the domain of intercultural communication and continue to be a frequently referenced model for comprehending the correlation between culture and communication patterns.

Personality

Within the discipline of communication studies, the challenge of discerning interactive communication styles involves two key aspects. Firstly, it entails identifying a consistent and recurring pattern in communication practices. Secondly, it involves interpreting the distinct impact of individual personality traits on both verbal and non-verbal expressions exhibited by individuals. The impact of personality factors on communication styles can have a noteworthy influence on individuals' behavior during the communication

process and their interactions with others within this context. The communication styles of individuals may vary depending on their personality traits, which can have an impact on their ability to establish relationships and effectively convey information. Hence, the correlation between personality traits and modes of communication holds significant significance in individuals' social engagements. The significance of this relationship lies in its pertinence to comprehending human communication, and its theoretical value in the dialectical interplay between communication styles and social identities (Diotaiuti et al., 2020).

The correlation between personality traits and communication style can exert a noteworthy influence on the manifestation of communication competencies and interpersonal interactions of individuals within this framework. The impact of the five primary personality traits (namely, extraversion, neuroticism, agreeableness, openness to experience, and responsibility) on communication abilities and effective communication outcomes holds significant importance in this context. The correlation between personality traits and communication patterns is deemed a crucial element in individuals' social interactions and communication proficiencies (Hassan et al., 2019).

Research Results Related Communication Style Among University Students

The objective of the study (Brown et al., 2011) was to ascertain the communication styles exhibited by health undergraduate students enrolled at a university in Australia. According to the study, the participants exhibited a preference for communicators who displayed traits of friendliness and attentiveness, while displaying the least preference for communicators who exhibited contentious and dominant traits. There existed a significant resemblance among the individuals enrolled in every health-related program. The study found no significant statistical variance in terms of communicator styles with respect to the age of the participants or their academic year level. The findings indicate that individuals exhibiting these communication styles exhibit a preference for health-related courses, independent of the influence of their chosen field of study on their communication style. The study's findings are subject to limited generalizability due to the utilization of convenience sampling.

The results of the study (Ahmed & Naqvi, 2015) showed that there is a relationship between personality traits and communication styles among male and female university students. Specifically, extraversion was positively related to expressiveness, neuroticism was positively related to emotionality and impression manipulativeness, openness to experience was positively related to questioningness, and conscientiousness was positively related to impression manipulativeness. Additionally, women scored higher on agreeableness and expressiveness, while men scored higher on preciseness in their communication style.

The paper (Mahmud, 2017) discusses the communication styles used by students in English language classrooms during classroom presentations. The study found that students used various communicative styles such as speech acts, discourse markers, language choices, address terms, and regional terms. The findings of the study are relevant in the development of effective classroom interaction in English language teaching.

The study (Hassan et al., 2019) found that four dimensions of personality traits, namely extraversion, neuroticism, agreeableness, and openness to experience, had significant relationships with communication competence among final year undergraduate students in Malaysia. However, conscientiousness trait was not found to be related to students' communication competence. Extraversion, agreeableness, and openness to experience had significant and positive relationships with communication competence while neuroticism was negatively related to communication competence. It was also found that UKM students' communication competence was significantly influenced by agreeableness trait while for UiTM students, extraversion had the strongest influence towards the communication competence.

The results (Rateb Darawsheh, 2022) indicate that female students possess a high level of communication skills such as negotiation, speaking skills, and dialogue, and a medium level of persuasion, influence, and listening skills during the corona pandemic period. The study was conducted from the perspective of 367 faculty members using the descriptive analytical survey method. There were no statistically significant differences attributed to the gender variable.

Measurement of Communication Style

Communication styles inventory (CSI) (de Vries et al., 2009, 2013; Korkut Owen & Demirbas Celik, 2018) is a measurement tool used to evaluate individuals' interpersonal communication processes. Communication styles include verbal and nonverbal behaviors that reflect the way individuals communicate with others (Ahmed & Naqvi, 2015). Different communication styles can affect individuals' ability to achieve mutual understanding, harmony, and effective interaction. The study of communication styles helps to better understand and manage communication between people in both academic and professional settings (Diotaiuti et al., 2020). CSI was developed to identify and analyze different communication styles of individuals. This inventory usually includes a set of scales and items that assess communication processes such as social interaction, empathy, openness, flexibility, and communication competence. Communication styles may vary depending on the cultural values, education levels, life experiences and personality traits of the individuals (de Vries et al., 2009, 2013). Using CSI can help individuals understand their own communication skills and their potential to communicate effectively with others. This knowledge allows individuals to better manage their communication styles and establish more successful relationships with others. In addition, CSI is an important tool for educators, consultants, and administrators to develop strategies to improve communication between people.

As a result, CSI is an important measurement tool used to evaluate and improve individuals' communication skills and styles (Rateb Darawsheh, 2022). Understanding and analyzing communication styles is critical in managing and developing interactions and relationships between people. CSI helps individuals, educators and professionals lay the foundation for effective communication and successful interpersonal relationships.

CSI (Norton, 1983): Norton's (1983) CSI is used to identify five basic communication styles: Emotive, supportive, reflective, directive, and controlling. This inventory helps assess individuals' verbal and nonverbal communication styles and can be used to understand the effects of these styles on social interactions and relationships.

de Vries et al.'s (2009) CSI is a psychometric tool used to measure communication styles in the workplace. This measurement tool was developed to help assess how individuals communicate in business and professional contexts. de Vries et al.'s (2009) CSI is used to identify six basic communication styles: Expressivity, precision, verbal aggressiveness, critical spirit, emotionality, impression manipulation. These six styles help to understand how individuals interact and allow to analyze the effects of these styles on leadership and cooperation.

Studies on intercultural communication have demonstrated that communication styles are significantly impacted by cultural differences. Hence, it is imperative to meticulously adapt and validate measurement instruments for utilization in diverse cultural settings. For CSI to be effectively utilized within the Russian context, it is imperative to establish cultural harmony, given the distinct language and cultural values present in the region.

The assessment of communication styles encompasses a crucial element of linguistic expression and its utilization. The precise and significant translation and adaptation of de Vries et al.'s (2009) inventory of communication styles into the Russian language holds significance for researchers and professionals operating within the Russian context.

The utilization of this adaptation enables the acquisition of more precise and reliable outcomes within the Russian milieu, while simultaneously expanding the range and comparability of global investigations utilizing this metric. There has been a growing body of research on communication styles in Russia, both in terms of quantity and breadth. Hence, it is imperative to furnish indigenous researchers and practitioners with suitable and dependable assessment instruments. The adaptation of CSI to the Russian context has the potential to enhance its knowledge and practice in this domain. The objective of the present investigation is to adapt CSI developed by de Vries et al. (2013) to suit the Russian context and to evaluate its effectiveness as a dependable and valid assessment instrument in the Russian language and culture.

METHODOLOGY

The study aims to adapt the communication styles scale in the context of Russia. The study is in a quantitative research approach. In the study, data were collected from a total of 407 students in undergraduate and graduate groups studying at different universities. 55.8% of the participants are female and 44.2% are male. The average age of the participants was 19.86 (standard deviation [SD]=3.68). Their distribution by universities is Almetyevsk State Oil Institute 163, Financial University Under the Government of the Russian Federation 18, KFU 101, Kazan National Research Technological University 99, Volgograd State Socio-Pedagogical University 26.

Communication Style Inventory

CSI is a questionnaire used to assess six distinct communication patterns. There are 96 communication behavior elements in CSI. The items are evenly distributed across the six domain-level scales (16 items per scale): Expressiveness (conversational dominance, talkativeness, humor, informality), preciseness (structuredness, thoughtfulness, substantiveness, conciseness), verbal aggressiveness (angriness, authoritarianism, derogatoriness, non-supportiveness), questioningness (unconventionality, philosophicalness, inquisitiveness. Each domain-level scale is comprised of four dimensions, each with four elements. All items (including those in the other scales reported below) were scored on a Likert-type scale extending from 1 (completely disagree) to 5 (completely agree). All domain-level scales of CSI were found to have reliability levels above .80, indicating that CSI is a reliable instrument. Additionally, CSI exhibited convergent validity with other communication instruments and discriminant validity with non-behavioral intrapersonal cognitions and emotions.

Data Analysis

Prior to the psychometric evaluation of the instrument, an investigation into language equivalence was meticulously undertaken. A linguist proficient in both English and Russian undertook the task of translating the individual components of the scale from English to Russian. Subsequently, a different expert proficient in the two languages performed a back-translation from Russian to English. A comprehensive review was conducted to ascertain and affirm the linguistic equivalence of the translated scale.

The descriptive data of the items were studied and evaluated to determine whether they exhibited normality via skewness (±2) and kurtosis (±7) (Kim, 2013). It was decided to carry out an exploratory factor analysis (EFA). Since each question offered five different response choices, it was determined that the items constituted continuous variables. Using the Kaiser-Meyer-Olkin (KMO) (>.80) and Bartlett's test of sphericity ($p<.05$), we investigated whether the sample was enough. There was a rotation with a Varimax applied (Watkins, 2018; Williams et al., 2010).

With the second sample, a confirmatory factor analysis (CFA) was carried out. Several fit indices, including Chi-square (χ^2), degrees of freedom (df), comparative fit index (CFI), Tucker Lewis index (TLI), root mean square error of approximation (RMSEA) along with their confidence intervals, and standardized root mean square residual (SRMR), were examined to evaluate the model. The assessment criteria were as follows: CFI and TLI must be greater than .90, and RMSEA and SRMR must be less than .08 (Harrington, 2009; Hu & Bentler, 1999; Jackson et al., 2009). The factor loadings were analyzed, and to prove that a factor represents a latent construct, they needed to have a value larger than .50. On the other hand, to calculate reliability, alpha and omega coefficients were utilized, and coefficients that were more than .80 were regarded as satisfactory.

FINDINGS

Exploratory Factor Analysis Results for Communication Style Inventory

The analysis process was carried out by performing parallel analysis to determine the number of factors. Also, the principal axis subtraction method was used. In the first analysis, suitability for factor analysis was assessed using Bartlett's test of sphericity and KMO sample adequacy measurement. The result of Bartlett's test of sphericity was found as χ^2=30,408, df=4,560, and $p<.001$. This indicates that the dataset is suitable for factor analysis. KMO measurement of .917 indicates good sample adequacy.

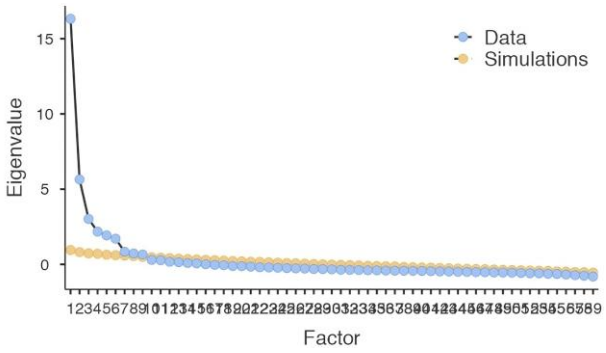

Figure 1. Scree plot based on parallel analysis (Source: Authors)

As a result of parallel analysis, 11 factors were obtained. Total items collected under two factors. So, it is decided that the rotation method should be applied. The second model was developed using Varimax as the rotation method. The parallel analysis determined eight factors (shown in **Figure 1**).

Items (CSI_3, CSI_13, CSI_14, CSI_15, CSI_23, CSI_27, CSI_29, CSI_30, CSI_31, CSI_32, CSI_34, CSI_37, CSI_40, CSI_53, CSI_55, CSI_58, CSI_66, CSI_68, CSI_67, CSI) CSI_69, CSI_70, CSI_71, CSI_72, CSI_73, CSI_74, CSI_75, CSI_76, CSI_77, CSI_78, CSI_79, CSI_80, CSI_87, CSI_91, CSI_92, CSI_95, CSI_96) with factor loadings less than .5 were excluded from the analysis. The suitability of this model was again evaluated with Bartlett's test of sphericity and KMO sample adequacy measurement. The result of Bartlett's test of sphericity was found as χ^2=18,272, df=1,711, and p<.001, indicating that the dataset is suitable for factor analysis. KMO measurement, on the other hand, indicates good sample adequacy with a value of .920.

Factor 1 has the lowest factor loading of .578 (CSI_54) and the highest factor loading of .722 (CSI_61) (**Table 1**). Upon examining the items in this factor, it becomes apparent that the items from the original scale's "questioningness" factor have been gathered. The factor comprises four items each related to Unconventionality and Argumentativeness, three items related to Inquisitiveness, and two items related to philosophicalness. The factor name remains unchanged from the original scale.

Factor 2 features the lowest factor loading of .537 (CSI_90) and the highest factor loading of .815 (CSI_83). Upon examining the relevant items, it is evident that the items from the original "impression manipulativeness" factor have been collected. There are four items related to Ingratiation, three items related to Charm, and two items each related to Inscrutableness and concealingness. The factor name has been preserved from the original scale.

In factor 3, nine items have been included, with the lowest factor loading calculated as .520 (CSI_12) and the highest factor loading as .716 (CSI_5). The items collected in this factor loading are related to the original scale's "expressiveness" factor. There are three items each related to talkativeness, conversational dominance, and humor sub-dimensions.

Factor 4 contains six items, with the lowest factor loading of .650 (CSI_17) and the highest factor loading of .829 (CSI_21). The relevant items are associated with the original scale's "preciseness" factor. There are three questions each related to structuredness and thoughtfulness subdimensions.

In factor 5, eight items have been gathered, with the lowest factor loading of .539 (CSI_39) and the highest factor loading of .705 (CSI_35). The items collected in this factor are related to the original scale's verbal aggressiveness factor. There are three items each related to angriness and derogatoriness sub-dimensions and two items related to authoritarianism.

Factor 6 comprises five items, with the lowest factor loading of .510 (CSI_41) and the highest factor loading of .868 (CSI_46). The items in this factor are related to verbal aggressiveness factor, with four items from the non-supportiveness subdimension and one item related to derogatoriness. Due to not using the same naming, the item questions have been examined, and the factor has been named "respectful communication."

In factor 7, five items have been collected, with the lowest factor loading of .567 (CSI_6) and the highest factor loading of .745 (CSI_10). The items are derived from expressiveness and preciseness factors. The factor has been named "communication struggles."

Table 1. Factor loading communication style inventory

	1	2	3	4	5	6	7	8	Uniqueness
CSI_61	.722								.389
CSI_59	.719								.398
CSI_51	.681								.315
CSI_50	.681								.177
CSI_60	.668								.430
CSI_64	.662								.393
CSI_63	.662								.413
CSI_62	.655								.362
CSI_52	.646								.274
CSI_57	.633								.486
CSI_56	.630								.448
CSI_49	.602								.383
CSI_54	.578								.555
CSI_83		.815							.250
CSI_84		.790							.283
CSI_81		.684							.341
CSI_82		.679							.318
CSI_85		.667							.357
CSI_93		.647							.419
CSI_89		.642							.478
CSI_88		.640							.437
CSI_86		.625							.407
CSI_94		.607							.448
CSI_90		.537							.545
CSI_5			.716						.344
CSI_7			.696						.320
CSI_8			.666						.292
CSI_4			.662						.440
CSI_2			.587						.497
CSI_9			.582						.378
CSI_11			.557						.356
CSI_1			.556						.466
CSI_12			.520						.396
CSI_21				.829					.251
CSI_22				.826					.256
CSI_20				.739					.340
CSI_24				.706					.398
CSI_19				.666					.432
CSI_17				.650					.437
CSI_35					.705				.366
CSI_33					.665				.413
CSI_42					.660				.303
CSI_38					.639				.448
CSI_36					.636				.448
CSI_44					.597				.264
CSI_43					.571				.333
CSI_39					.539				.566
CSI_46						.868			.183
CSI_47						.829			.241
CSI_45						.774			.324
CSI_48						.749			.354
CSI_41						.510			.703
CSI_10							.745		.319
CSI_16							.636		.417
CSI_18							.569		.499
CSI_6							.567		.529
CSI_26								.756	.285
CSI_28								.662	.377
CSI_25								.623	.402

Table 2. Explained variance by factors

Factor	SS loadings	Percentage of variance	Cumulative percentage
1	7.24	12.27	12.3
2	6.18	10.48	22.8
3	4.51	7.65	30.4
4	4.40	7.45	37.9
5	4.29	7.27	45.1
6	3.46	5.86	51.0
7	2.54	4.31	55.3
8	2.48	4.20	59.5

Table 3. Model indices for communication style inventory

Model	χ^2/df	CFI	TLI	SRMR	RMSEA	RMSEA 90% CI	RMSEA 90% CI
Criteria	<5	>.90	>.90	<.08	<.08	lower	upper
Initial	3,712/1,577=2.4	.88	.87	.07	.06	.06	.06
Final	3,179/1,533=2.1	.91	.90	.07	.05	.05	.05

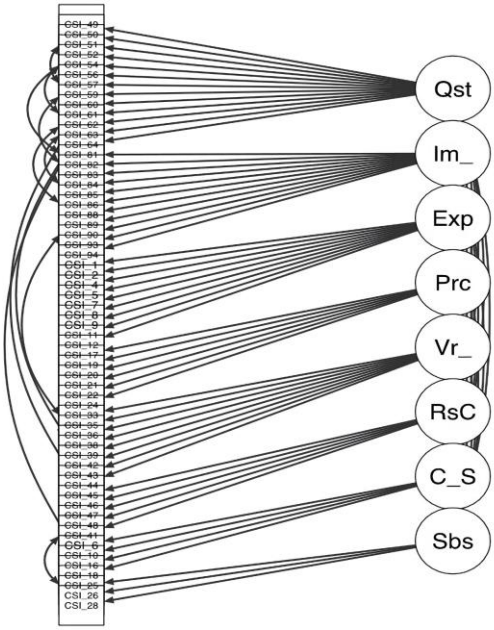

Figure 2. Path diagram for communication style inventory (Source: Authors)

Finally, factor 8 contains three items, with the lowest factor loading of .623 (CSI_25) and the highest factor loading of .756 (CSI_26). The items are related to preciseness dimension and substantiveness subdimension. As a result, the factor name has been designated as "substantiveness."

Table 2 provides the results of a factor analysis consisting of eight factors, revealing the contribution of each factor to the total variance. Cumulatively, these factors account for 59.5% of the total variance. Factor 1 emerges as the most significant factor, explaining 12.27% of the variance, followed by factor 2 with 10.5%. The remaining factors contribute, as follows: Factor 3 with 7.7%, factor 4 with 7.5%, factor 5 with 7.3%, factor 6 with 5.9%, factor 7 with 4.3%, and factor 8 with 4.2%. This analysis highlights the relative importance of each factor in explaining the variance in the data, with the first few factors playing a more significant role compared to the latter ones.

Confirmatory Factor Analysis Results for Communication Style Inventory

Two ways were followed in CFA, in the first one, factor structures obtained from EFA results were tested. In the second, the relationship between the original scale sub-dimensions and newly formed dimensions was also tested. First, the general situation was shared, and then the sub-dimension relations were shared (**Table 3**).

It shows the fit indices corresponding to the initially estimated parameters of the first model (**Figure 2**).

The χ^2/df value indicates an acceptable level of model fit, while the CFI and TLI values of .87 and .88 indicate a low fit. SRMR value is as high as .07 and RMSEA value is .06. However, RMSEA 90% confidence interval (CI) lower and upper limits are slightly higher than .06, indicating that there is uncertainty in the fit of the model. Modifications suggested by the program have been made.

It shows the fit indices obtained by the subsequent rearrangement of the first model (based on modification shown in **Figure 2**). χ^2/df value decreased and the model fit improved to 2.1. CFI and TLI values increased and reached the level of .90. SRMR value remained the same and the RMSEA value decreased and reached 0.05. RMSEA 90% CI lower and upper limits are also less than 0.05, indicating less uncertainty in the fit of the model. These results show that the structural equation model initially showed poor fit, but later showed better fit when rearranged. These fit indices show how well the model matches the data and results generally show better model fit with higher fit indices (**Table 4**).

Table 4. CFA factor loading for communication style inventory

Factor	Indicator	Estimate	SE	Z	p
Questioningness	CSI_49	.743	.0536	13.85	<.001
	CSI_50	.755	.0475	15.90	<.001
	CSI_51	.724	.0467	15.51	<.001
	CSI_52	.776	.0524	14.80	<.001
	CSI_54	.664	.0484	13.73	<.001
	CSI_56	.787	.0484	16.25	<.001
	CSI_57	.731	.0459	15.92	<.001
	CSI_59	.745	.0465	16.01	<.001
	CSI_60	.634	.0462	13.72	<.001
	CSI_61	.850	.0506	16.78	<.001
	CSI_62	.904	.0523	17.27	<.001
	CSI_63	.832	.0474	17.57	<.001
	CSI_64	.853	.0472	18.05	<.001
Impression manipulativeness	CSI_81	.980	.0496	19.76	<.001
	CSI_82	.989	.0501	19.73	<.001
	CSI_83	1.033	.0490	21.08	<.001
	CSI_84	1.050	.0501	20.93	<.001
	CSI_85	.835	.0524	15.94	<.001
	CSI_86	.755	.0555	13.60	<.001
	CSI_88	.815	.0562	14.51	<.001
	CSI_89	.783	.0532	14.73	<.001
	CSI_90	.683	.0550	12.42	<.001
	CSI_93	.753	.0488	15.41	<.001
	CSI_94	.746	.0508	14.69	<.001
Expressiveness	CSI_1	.620	.0418	14.84	<.001
	CSI_2	.640	.0560	11.43	<.001
	CSI_4	.649	.0544	11.92	<.001
	CSI_5	.758	.0480	15.78	<.001
	CSI_7	.718	.0434	16.56	<.001
	CSI_8	.721	.0424	17.00	<.001
	CSI_9	.779	.0463	16.82	<.001
	CSI_11	.732	.0455	16.09	<.001
	CSI_12	.699	.0477	14.64	<.001
Preciseness	CSI_17	.776	.0438	17.70	<.001
	CSI_19	.763	.0417	18.29	<.001
	CSI_20	.797	.0384	20.73	<.001
	CSI_21	.680	.0450	15.12	<.001
	CSI_22	.686	.0420	16.34	<.001
	CSI_24	.590	.0438	13.46	<.001
Verbal aggressiveness	CSI_33	.804	.0565	14.23	<.001
	CSI_35	.857	.0549	15.61	<.001
	CSI_36	.625	.0523	11.96	<.001
	CSI_38	.751	.0501	14.98	<.001
	CSI_39	.486	.0510	9.53	<.001
	CSI_42	1.033	.0514	20.09	<.001
	CSI_43	1.011	.0518	19.52	<.001

Table 4 (Continued). CFA factor loading for communication style inventory

Factor	Indicator	Estimate	SE	Z	p
	CSI_44	1.126	.0524	21.50	<.001
Respectful communication	CSI_45	.681	.0376	18.13	<.001
	CSI_46	.753	.0344	21.89	<.001
	CSI_47	.773	.0348	22.20	<.001
	CSI_48	.722	.0386	18.72	<.001
	CSI_41	.539	.0533	10.12	<.001
Communication struggles	CSI_6	.717	.0476	15.07	<.001
	CSI_10	.901	.0505	17.83	<.001
	CSI_16	.784	.0508	15.45	<.001
	CSI_18	.720	.0521	13.83	<.001
Substantiveness	CSI_25	.862	.0496	17.39	<.001
	CSI_26	.923	.0490	18.84	<.001
	CSI_28	.977	.0554	17.65	<.001

Table 5. Model indices based on subdimensions of communication style inventory

Model name	χ^2/df	CFI	TLI	SRMR	RMSEA	RMSEA	RMSEA
Criteria	<5	>.90	>.90	<.08	<.08	lower	upper
Questioningness	235/59=4.0	.95	.93	.03	.09	.07	.10
Impression manipulativeness	82.1/33=2.5	.98	.97	.03	.06	.04	.08
Expressiveness	39.9/19=2.1	.99	.98	.02	.05	.03	.07
Preciseness	3.29/8=0.4	1.00	1.00	.01	.00	.00	.02
Verbal aggressiveness	37.3/17=2.2	.99	.98	.02	.05	.03	.08
Non-supportiveness	14.7/5=2.9	.99	.98	.02	.07	.03	.11
Communication struggles	.328/2=0.2	1.00	1.00	.003	.00	.00	.05
Substantiveness	NA	1.00	1.00	.001	.00	.00	.00

After analyzing the relationship between each item and its corresponding factors, we found that they are all significant at the p-value of .001. As per our findings in CFA, there are no items that need to be excluded from the inventory.

Table 5 presents the model fit indices for eight different models. Overall, all models show acceptable to excellent fit based on the fit indices (CFI>.90, TLI>.90, SRMR<.08, and RMSEA<.8).

After analyzing the relationship between each item and its corresponding sub-factors, they are all significant at the p-value of .001 (**Table 6**). No need to eliminate any item.

Table 6. CFA factor loading based on dimensions of communication style inventory

Model	Factor	Indicator	Estimate	SE	Z	p
Questioningness	Argumentativeness	CSI_61	.91	.05	19.10	<.001
		CSI_62	.96	.05	18.50	<.001
		CSI_63	.82	.05	17.00	<.001
		CSI_64	.90	.05	19.60	<.001
	Inquisitiveness	CSI_57	.76	.05	16.40	<.001
		CSI_59	.83	.05	18.10	<.001
		CSI_60	.76	.05	16.80	<.001
	Unconventionality	CSI_49	.95	.05	19.70	<.001
		CSI_50	.97	.04	23.50	<.001
		CSI_51	.87	.04	20.10	<.001
		CSI_52	.98	.05	20.60	<.001
	Philosophicalness	CSI_54	.78	.05	16.20	<.001
		CSI_56	.92	.05	18.80	<.001
Impression manipulativeness	Ingratiation	CSI_81	.96	.05	19.10	<.001
		CSI_82	.98	.05	18.90	<.001
		CSI_83	1.08	.05	22.70	<.001
		CSI_84	1.12	.05	23.20	<.001
	Charm	CSI_85	1.03	.05	20.30	<.001
		CSI_86	.98	.05	18.60	<.001
		CSI_88	1.04	.06	18.60	<.001
	Concealingness	CSI_93	.96	.05	20.10	<.001
		CSI_94	.93	.05	18.30	<.001

Table 6 (Continued). CFA factor loading based on dimensions of communication style inventory

Model	Factor	Indicator	Estimate	SE	Z	p
	Inscrutableness	CSI_89	.93	.06	16.80	<.001
		CSI_90	.79	.06	14.20	<.001
Expressiveness	Conversational dominance	CSI_5	.82	.05	17.20	<.001
		CSI_7	.76	.04	17.50	<.001
		CSI_8	.74	.04	16.50	<.001
	Talkativeness	CSI_1	.66	.05	14.30	<.001
		CSI_2	.70	.06	11.90	<.001
		CSI_4	.72	.06	12.70	<.001
	Humor	CSI_9	.92	.04	20.60	<.001
		CSI_11	.84	.04	19.60	<.001
		CSI_12	.80	.05	17.30	<.001
Preciseness	Thoughtfulness	CSI_21	.90	.04	23.20	<.001
		CSI_22	.87	.04	23.60	<.001
		CSI_24	.72	.04	18.10	<.001
	Structuredness	CSI_17	.77	.04	17.40	<.001
		CSI_19	.76	.04	18.00	<.001
		CSI_20	.83	.04	21.40	<.001
Verbal aggressiveness	Angriness	CSI_33	1.02	.05	19.20	<.001
		CSI_35	1.05	.05	20.20	<.001
		CSI_36	.80	.05	16.00	<.001
	Derogatoriness	CSI_42	1.09	.05	22.10	<.001
		CSI_43	1.06	.05	20.60	<.001
		CSI_44	1.08	.05	20.10	<.001
	Authoritarianism	CSI_38	1.03	.05	19.50	<.001
		CSI_39	.70	.05	13.70	<.001
Non-supportiveness	Non-supportiveness	CSI_45	.72	.04	20.00	<.001
		CSI_46	.80	.03	23.97	<.001
		CSI_47	.75	.04	21.35	<.001
		CSI_48	.70	.04	18.00	<.001
		CSI_41	.52	.05	9.81	<.001
Communication struggles	Communication struggles	CSI_6	.70	.05	14.10	<.001
		CSI_10	.94	.05	17.80	<.001
		CSI_16	.79	.05	14.80	<.001
		CSI_18	.76	.05	14.10	<.001
Substantiveness	Substantiveness	CSI_25	.77	.05	15.70	<.001
		CSI_26	1.04	.05	21.10	<.001
		CSI_28	.89	.05	16.40	<.001

Table 7. Reliability results based on dimensions of communication style inventory

Model	Cronbach's α	McDonald's ω
Questioningness	.936	.936
Impression manipulativeness	.927	.927
Expressiveness	.903	.907
Preciseness	.904	.905
Verbal aggressiveness	.903	.904
Non-supportiveness	.868	.888
Communication struggles	.810	.812
Substantiveness	.839	.845

Reliability Analysis for Communication Style Inventory

Table 7 presents the reliability analysis of various communication models, showing their Cronbach's α and McDonald's ω coefficients. The results indicate that all models have moderate to high internal consistency, with values ranging from .810 to .936. It can be accepted that the items within each model are closely related and provide reliable measures of their respective constructs.

DISCUSSION

The factor structure obtained in this study is significantly different from the factor structure of the original scale. This may be due to differences in the social and psychological structures of different cultures. As it is known, cultural is among the factors that affect the communications (Guo, 2020; Mamzer, 2018; Pânişoară et al., 2015; Saleem, 2022). In cross-cultural studies (Chłopicki, 2017; Diotaiuti et al., 2020), it is known that cultural factors can affect the validity and reliability of scales. Therefore, it can be considered that the factor structure obtained is more suitable for the Russian context. In EFA results (Watkins, 2018; Williams et al., 2010), it was observed that the first few factors played a more important role in explaining the variance in the data. Based on parallel analysis (Hayton et al., 2004) eight factors were determined. This situation reveals the basic aspects of the scale and the priority aspects of the examined cases (Leal-Costa et al., 2016). The fact that the first factors explained more variances suggests that these factors are also important (Watkins, 2018) in the Russian version of the scale. The role of CFA is to validate the factor structure obtained by EFA and this is to discuss its impact on the final model. CFA helps to test the suitability of the determined factor structure and whether sub-dimensions of the scale are independent from each other (Brown, 2015; Harrington, 2009).

CFA results are critical to validate the fit of the factors obtained during EFA and the final model. In CFA, the fit of the model was increased with the adjustments made on the low fit of the first model. All models show acceptable to excellent fit based on the fit indices (CFI>.90, TLI>.90, SRMR<.08, and RMSEA<.8) (Harrington, 2009; Hu & Bentler, 1999; Jackson et al., 2009). This process demonstrates how the scale can be adapted in different cultures and sample groups and shows the flexibility of the scale. In addition, thanks to the harmonization improvements, a more suitable factor structure was obtained for the Russian adaptation of the scale.

In CFA, it was determined that all items had significant relationships with the factors and there was no item that should be removed from the inventory (Harrington, 2009). This shows that there are strong relationships between the concepts and structures measured by the items of the scale. Thus, the Russian version of the scale is conceptually valid and reliable.

The findings obtained in the study show that the scale is suitable for different cultures and sample groups and that the data can be analyzed with these factor structures. This indicates that the scale can be used universally. The applicability of the scale in different cultures increases the generalizability and scientific contribution of the study. In addition, the comparability of the results of similar studies conducted in different cultures is valuable in terms of cross-cultural understanding of social and psychological structures. For this reason, it is thought that the Russian adaptation of the scale was also successful and constitutes an important example for similar adaptations in different cultures.

CONCLUSIONS AND RECOMMENDATIONS

Within the scope of this study, EFA and CFA were performed on the sample. As a result of EFA, 11 factors were obtained, and a second model was created with eight factors by applying the Varimax rotation method on the data set. This model was found suitable by evaluating with the Bartlett sphericity test and KMO sample sufficiency measurement. In the model created, eight factors were found to explain 59.5% of the total variance. Among these factors, “inquisitiveness” and “impression manipulation” factors taken from the original scale were preserved and other factors were newly named. The factor analysis results show that the first few factors play a more important role in explaining the variance in the data. In CFA, the factor structures obtained from EFA results and the relationship between the original scale sub-dimensions and the newly created dimensions were tested. The structure, which showed low compliance in the first model, was better adapted to the regulations. In addition, it was determined that all items had significant relations with the factors and there was no item that should be removed from the inventory. As a result, thanks to these analyzes, a new factor structure of the scale was created, and this structure was confirmed. The findings obtained in the study show that the scale is suitable for different cultures and sample groups and that the data can be analyzed with these factor structures. This study for the Russian adaptation of the scale supports the validity and reliability of the scale. It is recommended to carry out the adaptation study of the scale to different cultures and to use the obtained scale in research in the Russian context. The principal constraint of

the present investigation is intrinsically linked to the issue of representation. Even though the data were compiled from a diverse range of academic institutions throughout the study, it is important to note the inability to fully encompass the comprehensive representation of all Russian university students. This constraint stems from the fact that the research relies on a selected sample, which, although varied, does not cover the entirety of the student population dispersed across the multitude of universities in Russia. Consequently, caution should be exercised when extrapolating the findings to the broader demographic of university students in Russia, as the sampling might not fully capture the rich heterogeneity and varying contexts of this demographic.

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