

## Article

# Students' Perceptions of Verbal and Non-Verbal Communication Behaviors during and after the COVID-19 Pandemic

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**Abstract:** Aiming at shedding light on the implications the COVID-19 pandemic has had on the students' social and personal lives, this study has focused on the verbal and non-verbal communication and on the surveyees' personal lives during the pandemic as well as on the perspective of changing their communication behaviors after the pandemic. The 409 respondents, students at Politehnica University of Timișoara, took part in a survey, conducted between 1 April and 30 May 2021, that was posted on isondaje.ro, a Romanian online survey platform. The research has suggested the following results: the adjustment of the verbal communication by speaking in a more articulated manner or more loudly; the overuse of the upper part of the face to compensate for the concealed parts of the face due to face mask wearing; the analysis of the factors underlying the respondents' actions, i.e., relational attitudes, various greeting forms, various non-verbal reactions, which are aspects that are likely to change even after the pandemic. The results have also presented the changes that interpersonal communication could go through under the pressure of the restrictions imposed by the pandemic, but also the ways through which people try to protect their most valuable asset, i.e., communication, which defines humanity and makes us unique as human beings.

**Keywords:** COVID-19; verbal communication; non-verbal communication; students; human behavior; face masks; video-conferencing tools; social distancing; wellbeing



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## 1. Introduction

First reported by the World Health Organization (WHO) on 31 December 2019 and then declared as a pandemic on 11 March 2020 [1] by WHO, the Coronavirus disease 2019 (COVID-19), an illness caused by a novel coronavirus called severe acute respiratory syndrome coronavirus 2, which first appeared in Wuhan City, Hubei Province, China, has shaken and disrupted the world's health and emotional state, wreaking havoc into people's lives and changing their behaviors like never before in only a short period of time. As a result of the lockdown, confinement, separation, isolation as well as the fear of the unknown have impacted not only the psychological well-being of frontline healthcare workers (stress, anxiety, depression, burnout, sleep disturbance) in the Western [2] and in the Asian world [3–5], but that of the general population as well [6–8].

Besides affecting people on a physical, psychological and behavioral level [9], it became clearer that the coronavirus disease has also impacted the relationships between people, influencing the way we communicate with each other, not only verbally, but also non-verbally. In times of a pandemic, at a national or local level, risk communication, i.e., “the real-time exchange of information, advice and opinions between experts or officials, and people who face a threat (hazard) to their survival, health or economic or social well-being” [10] takes center stage in order to preserve the economic, political, and social state of affected countries [11].

Still, at an interpersonal level, communication has suffered tremendously due to face masks, which undeniably help our health and fight against the virus, but strain our daily face-to-face communication, and to social distancing rules, which have also taken a toll on people's psychological well-being. Therefore, people were forced to adapt to these new life conditions by adopting no-touch greetings pertaining to other cultures when meeting, such as namaste, wai or elbow-bumping [12,13] and by shifting to use remote communication applications, such as Zoom, Google Meet, Skype, and Microsoft Teams, in order to continue their business and educational activities [14,15] and sometimes even for their personal encounters.

This study sheds light on this time in our lives when face masks and the virtual world have become our new normal. Being a very novel topic, it tries to see how students, a very hit category of the population by this pandemic due to the fact that they represent very young, mobile and energetic people, have overcome the pandemic as far as interpersonal communication is concerned, i.e., whether face masks have hindered their communication, the shortcuts they have resorted to for communicating in this case, how non-verbal communication has helped them in the virtual world and most importantly, what they believe the future holds for them with respect to interpersonal relationships. In other words, whether they will maintain some of their pandemic behaviors in the future post-pandemic world or whether they will return to the old normal, "burying" and forgetting about the pandemic rules and behaviors.

## 2. Literature Review

### 2.1. Use of Face Masks in Interpersonal Communication

As of 16 August 2021, there are 207,173,086 confirmed cases of COVID-19, including 4,361,996 deaths globally [16]. To fight the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), the World Health Organization sets forth that, besides physical distancing, avoiding crowds, cleaning hands, etc., wearing a face mask is an essential part of the measures that should be taken in order to save lives [17].

Wearing face masks (including not only surgical masks, respirator masks (N95/FFP2), but also cloth masks) has been and still is a controversial topic not only for healthcare workers but also for ordinary people [18]. Although face masks have been used since the Middle Ages against contagious diseases and then in the 20th century for surgical purposes [19] and, although there are studies that support the important role they have in the prevention and control of respiratory infectious diseases [20–22], other studies (e.g., [23,24]) have also pinpointed the discomfort they cause to the wearer. Such disadvantages include difficulty in breathing, warming/sweating, misting up of the glasses and slurred speech, which may make people want to come closer unconsciously.

Face masks also come with a major disadvantage for interpersonal communication: they conceal people's facial expressions. Having been studied from different perspectives, these expressions are considered to be the most important part of our non-verbal arsenal as they communicate emotions [25,26]. Even if the traditional view stating that facial expressions are universal [27–29] has been criticized and dismantled over time, these expressions being seen by some as culturally-bound [30,31], there is a body of well-referenced studies that support the fact that the facial expressions of seven emotions (anger, contempt, disgust, fear, joy, sadness and surprise) are universally expressed [32–34].

Non-verbal behavior and, thus, facial expressions have a metacommunicative function, meaning that they help decode the interlocutor's verbal message as well as his/her underlying feelings about the situation/encounter. Unfortunately, face masks turn us all into "poker players" with inexpressive faces, covering the middle (nose) and lower (lips, jaws, chin) face, which help a lot in making us recognize emotions [35].

Still, as studies suggest, people can make recourse to other non-verbal signals in their interlocutor in order to shortcut the concealed face expressions and decipher their emotions, such as voice [36], gaze direction and head orientation [37] or body posture [38], or even through the articulation of the speech and the increase in the speech volume [39].

This might prove of utmost importance, especially in cases of emergency, such as the COVID-19 pandemic, when we are forced to wear face masks, and many researchers have advanced some ways in which communication can be enhanced, either in personal [40] or professional encounters [41–43]. Among these are the use of the upper part of the face (eyes and eyebrows) to counteract the shielded part or the resort to transparent face masks or to telecommunication. As for the professional encounters, there is much more research done than for interpersonal relationships and it has been carried out mainly on the communication between doctors and patients in healthcare settings [41–44]. It seems that the wearing of face masks poses real communication challenges and presents not only a physical [45], but also a psychological barrier [46] in the doctor-patient relationship, especially for patients with cognitive or hearing problems, leading to disruptions in this type of professional communication, which should be based on trust and empathy, i.e., to anxiety, stress, frustration, fatigue, both for the speaker and the listener [47].

Since this study focuses on students, it would be interesting to note whether other studies have also taken them into consideration as regards communicating with face masks. Most of the research so far has discussed the students' use and attitudes towards wearing a face mask [48–50] and has not focused on their perception on the challenges the communication with face masks brings about.

## 2.2. Video-Conferencing Tools (VCTs) and Interpersonal Communication

As the lockdown continued to settle in and as people are known to adapt easily, video-conferencing platforms have become the new standard for business, educational and even casual meeting purposes. Among the most important platforms are Zoom, Microsoft Teams, Cisco Webex and Skype for Business [51]. Although they are a substitute for face-to-face interaction and have proven their worth, it has been shown that increased time spent on these platforms is mentally and physically draining [52] and, corroborated with other stress-inducing factors (e.g., lockdown), can eventually lead to exhaustion and burnout [53].

Online education and telecommuting (a term coined by Jack Nilles, a NASA communication systems designer, in the 1970s) were already on the map before the pandemic has broken out. For example, according to statistics, 35% of the Americans had already started working from home during 1997–2010 [54]. Therefore, pre-pandemic research has been undertaken in order to gain insight into the way the time spent before screens impacts people's behavior and health. It was noticed that personality traits, such as extraversion and introversion, play an important part in the burnout resulted from working from home, meaning that extroverts did not fit into this pattern, presenting burnout, as opposed to introverts, who were more at ease in this setup [55]. Other psychological problems such as depressive symptoms and sleep disturbances were found more in females than in males as well as in adolescents and students [56,57]. Lissak [58] also lists some of the physical effects that the unrestrained screen time can have on adolescents, e.g., cardiovascular diseases, obesity, insulin resistance and impaired vision.

To the psychological impact already provided by the outbreak of the COVID-19 pandemic situation (e.g., higher levels of stress, anxiety and depression [59]; worry and sleep disruption [60,61]; psychological distress [62]), the confinement followed by online activities have also added their part.

Communicating through video-conferencing tools is strenuous, creating fatigue and taking a lot of our energy since, without non-verbal cues to help us decipher the covert and emotional meaning behind words, we have to rely more intensely on words and use a prolonged eye contact [63]. Moreover, this level of intimacy (direct eye gaze and face close-ups) is usually reserved for intimate relationships, but has become the new way of interacting with coworkers and acquaintances and seems to disrupt our productivity [64]. Proximity and the size of other people's images (and even our own) can intrude into our personal space and make us see them as harrowing [65].

In addition, it seems that VCTs impede our creativity and problem-solving due to the fact that walking, moving around in the physical environment (from rooms to rooms, buildings to buildings) or standing in front of people make us more focused on the problem [63]. Furthermore, poor connection, lagging time in responding or frozen screens also hinder communication, making it almost impossible to interpret the non-verbal cues and facial expressions [66]. Studies have also shown that VCTs distort the participants' spatial environment, particularly affecting their gaze direction, not knowing when it is their time to speak, leading to a lack of trust among the people involved in the meeting, which is paramount for a good inter-group communication [67–69].

There is a lot of research on video-conferencing used for education, dealing mainly with the best teaching techniques and online platforms [70–72], teachers' and students' perceptions [73–77] or students' satisfaction [78] regarding distance education during the COVID-19 pandemic. Unfortunately, little research has been done on the challenges and difficulties faced by students with reference to the way they perceive verbal and non-verbal communication in an online setting, to the way it impacts their interpersonal relationships and to the practices they have adopted to deal with these shortcomings. This study aims at bridging this gap with useful information on how students, the future generation that will set trends, deal with crisis communication, and also provides insights into the future patterns of communication in a COVID-free world that will very likely continue in an online world as, according to statistics, by 2024 only 25% of the meetings will take place in person [79].

### 3. Materials and Methods

The students of Politehnica University of Timișoara have been chosen as the study subjects. The main reason for choosing students as study population is that they represent a category of young people, who will set the future trends in interpersonal and then organizational communication behaviors at their workplaces. At the same time, the study aims at predicting the behaviors of a group of people, already familiarized with smart devices, towards using these tools (laptop, tablet, video-conferencing tools) almost permanently in the future. Due to the COVID-19 lockdown imposition in Romania, Politehnica University of Timișoara has also rallied with other universities in March 2020 [77] and has decided to move all its educational activities online through its e-learning center and by using the Zoom online tool, a situation that has remained the same ever since.

In order to identify the respondents' verbal and non-verbal communication behaviors during the COVID-19 pandemic and their expectations regarding the changes that the verbal and non-verbal communication might suffer when the COVID-19 pandemic is over, the following research objectives have been set:

- RO1. To determine the impact the social distancing conditions imposed by the COVID-19 pandemic had on the verbal communication;
- RO2. To determine the impact the social distancing conditions imposed by the COVID-19 pandemic had on the non-verbal communication;
- RO3. To determine the impact the restrictions imposed by the COVID-19 pandemic had on the respondents' personal lives;
- RO4. To determine the respondents' expectations to change their communication habits when the COVID-19 pandemic is over.

#### 3.1. Research Methodology

In order to achieve the aforementioned research objectives, an online questionnaire survey was conducted between 1 April and 30 May 2021, among the students pursuing a Bachelor's or Master's degree at Politehnica University of Timișoara. The questionnaire comprised 5 opinion questions and 5 factual questions, and it was posted on a Romanian online survey platform, namely on *isondaje.ro*. For all the questions asked, the scale that was used was a 5-point scale ('very little'/'not at all' to 'very much'), 3 being the mid-point value. The sample was made up of 409 respondents, i.e., 166 men (40.6%), and

243 women (40.6%), whose anonymity was ensured, and whose participation was voluntary and could be ended at any time during the survey. The opinions thus collected built the database underlying the study. Using the SPSS software, version 20.00, a factor analysis was performed on a string of statements related to the adoption of some habits by the study subjects after the end of the pandemic.

### 3.2. Research Findings and Discussion

The first two objectives of the study comprised one question with 5 statements, which were analyzed as statistical averages (i.e., the arithmetic mean of the subjects' answers on a scale from 1 to 5). The third objective consisted of two questions and a reflective exercise, made up of multiple statements, while the fourth objective presented the surveyees with statements in which they had to express their opinions regarding the behaviors they believed might or might not be preserved in post-pandemic times.

#### 4. RO1. The Impact the Social Distancing Conditions Imposed by the COVID-19 Pandemic Had on the Verbal Communication

To achieve this objective, the following question was asked: *In terms of the verbal communication during this period, a series of statements that could describe your experience are listed below. Please rate the extent to which they describe your life during the pandemic.* The request made to the subjects was to rate the pandemic period in terms of 5 parameters. Their values are presented in Table 1, as statistical averages (i.e., the arithmetic mean of the subjects' answers on a scale from 1 to 5) of the whole sample.

**Table 1.** Statements reflecting verbal communication on a scale from 1 to 5.

Statements Reflecting Verbal Communication	Average
Social distancing conditions forced me to use the telephone/laptop/tablet more	4.02
Wearing the face mask forced me to repeat the message to make myself understood by the interlocutors	3.46
Wearing the face mask forced me to speak more articulately (clearly) to make myself understood by the interlocutors	2.91
Wearing the face mask forced me to speak more slowly to make myself understood by the interlocutors	2.86
The social distancing imposed by the pandemic corresponded to my way of being	2.49

The first response variant obtained, as a statistical average, *social distancing conditions forced me to use the telephone/laptop/tablet more*, recorded a value of 4.02. This was an expected response because the subjects carry out their activity in an academic environment (all of them are students) and the courses have been held online since March 2020. This new situation caused by wearing the face mask generated average responses of 3.46 for the option: *wearing the face mask forced me to repeat the message I was sending to make myself understood by the interlocutors*. Repeating the message, is the easiest thing to do when s/he is not being understood. Below the mid-point value of the scale, but close to it, was the answer: *wearing the face mask forced me to speak more articulately (clearly) to make myself understood by the interlocutors* (2.91). If in non-pandemic times, people tended to speak quickly and mumble, in pandemic times, speaking articulately was also a way of compensating for the communication challenges caused by wearing the face mask. The other two aspects considered were also below the mid-point value of the scale, but the responses cannot be neglected. Thus, the following results were obtained: the average 2.86 for *wearing the face mask forced me to speak more slowly to make myself understood by the interlocutors* and the average 2.49 for *social distancing imposed by the pandemic corresponded*



to my way of being, respectively. The last answer is extremely interesting because social distancing corresponded to the respondents' way of being, i.e., the conditions imposed by the pandemic were not something the respondents had not experienced before. Therefore, the communication and training activities carried out before the pandemic were not only useful and similar to those during the pandemic, but these often corresponded to the usual, natural way of communicating of those involved in the study.

## 5. RO2. The Impact the Social Distancing Conditions Imposed by the COVID-19 Pandemic Had on the Non-Verbal Communication

To meet this objective, the following question was asked: *Non-verbal communication among humans is multifaceted, complementary and diverse. To what extent do the following statements reflect your non-verbal communication over the past year?*

Wearing the face mask, as a safety measure imposed by the pandemic, also affected non-verbal communication (Table 2). The following answers were recorded: *wearing the face mask made me focus on the expression of other people's eyes* (average 3.39); *wearing the face mask challenged my hearing in many situations* (average 3.18); *wearing the face mask made my interlocutor gesticulate more often* (average 2.98); *wearing the face mask made me gesticulate to better express my thoughts* (2.78). In order to make themselves understood, very often, the respondents resorted to speaking louder, as shown by the average response of 3.17 to the option *wearing the face mask forced me to speak louder in direct communication with others*.

**Table 2.** Statements reflecting non-verbal communication on a scale from 1 to 5.

Statements Reflecting Non-Verbal Communication	Average
Wearing the face mask made me focus on the expression of other people's eyes	3.39
Wearing the face mask challenged my hearing in many situations	3.18
Wearing the face mask forced me to speak louder in direct communication with others	3.17
Wearing the face mask made my interlocutor gesticulate more often	2.98
Wearing the face mask made me gesticulate to better express my thoughts	2.78

On a daily basis, people communicate by all means, i.e., verbally, non-verbally and paraverbally. The communication barriers that might appear at one of these levels, e.g., wearing a face mask that covers the mouth and nose, causes a shift towards other non-verbal communication elements. Hence, the responses for *wearing the face mask made me focus on the expression of other people's eyes* recorded the average of 3.39 (Table 2). In other words, non-verbality obstructed by the face mask makes us focus on the eyes both when we transmit messages as well as when we receive them. Thus, to better convey the message, other parts of the body need to be more involved in the communication process, e.g., hearing (average 3.18) and speaking louder (average 3.17). These are complemented by more extensive gestures, bridging the gap between the communication channels.

## 6. RO3. The Impact the Restrictions Imposed by the COVID-19 Pandemic Had on the Respondents' Personal Lives

To achieve the third research objective, two questions were asked and a reflective exercise was done:

- To what extent have the online activities carried out during the pandemic impacted various aspects of your personal life?
- The hygiene measures adopted to prevent the spread of the COVID-19 virus have required to wear a face mask. Concerning this practice, think of the aspects signaled in the following statements.

- What means of two-way communication have you used to share your deep feelings/emotions with your colleagues during the pandemic?

The responses received to the first question *To what extent have the online activities carried out during the pandemic impacted various aspects of your personal life?* are presented in Table 3.

**Table 3.** Statements reflecting the respondents' personal life during the pandemic.

Statements Reflecting the Respondents' Personal Life during the Pandemic	Average
I consider my interlocutor is polite if s/he keeps silent during an online dialogue	2.96
Online activities during the pandemic made me more punctual	2.57
Direct communication in the virtual environment made me more attentive to the interlocutors' reactions	2.54
Online discussions during the pandemic were more harmonious	2.47
I consider my interlocutor is impolite if s/he interrupts me during an online dialogue	2.46
When online, I tend to frequently interrupt my interlocutor during the ongoing dialogue	1.76

During the online activities, the participants in the survey identified several ways of adapting to the new communication situations (Table 3):

- The spontaneity of the dialogue disappears in the online environment, as highlighted by the responses to the statement—*I consider my interlocutor is polite if s/he keeps silent during an online dialogue* (average 2.96);
- Punctuality has obtained increasing scores, as inferred from the responses to the statement—*Online activities during the pandemic made me more punctual* (average 2.57);
- For a clearer comprehension of the messages, there is an increased attention to the reactions of the interlocutors, an aspect highlighted by the average response of 2.54 to the statement *Direct communication in the virtual environment made me more attentive to the interlocutors' reactions*;
- The need to wait for the interlocutors' answers in the virtual environment made the respondents more disciplined, which was also shown in the answers to *Online discussions during the pandemic were more harmonious* (average 2.47).

Thus, the surveyees have been educated to communicate effectively in the virtual environment, which has been revealed by the averages obtained for the following statements:

- *I consider my interlocutor is impolite if s/he interrupts me during an online dialogue* (average 2.46);
- *When online, I tend to frequently interrupt my interlocutor during the ongoing dialogue* (average 1.76).

The second activity done to achieve the third research objective was a reflective exercise which described a situation and made the respondents think of some aspects that might emerge from it—*The hygiene measures adopted to prevent the spread of the SARS-CoV2 virus have required to wear a facemask. Concerning this practice, think of the aspects signaled in the following statements* (Table 4).

**Table 4.** Statements reflecting personal feelings during the pandemic.

Statements Reflecting Personal Feelings during the Pandemic (Love, Anger, Sadness, etc.)	Average
Wearing a face mask made me discover the speakers' feelings from their voice	3.04
Wearing a face mask made me discover the interlocutors' feelings from their look/eyes	2.97
Wearing a face mask made me discover the interlocutors' feelings from their gestures	2.97
Wearing a face mask hindered me in discovering the interlocutors' feelings	2.83

Considering the results obtained (Table 4) and the fact that many interpersonal channels are employed in communicating our feelings, obstructing some of them forces the others to take over, at least partially, the mission of expressing our emotions. Thus, the limited access to the nonverbal communication parameters led to a different transmission and reception of feelings. As it can be seen in Table 4, *voice* becomes the main channel (average 3.04), followed closely by *look/eyes* (average 2.97) as well as *gestures* (average 2.97); the last two were equally preferred by the surveyees. It can also be noticed from the average of 2.83 that many of the respondents feel *hampered in discovering the interlocutors' feelings*. Therefore, whenever interpersonal communication is impeded for a certain reason, no matter if it is caused by the fact that, in pandemic times, it is mandatory to wear a face mask or to keep the recommended physical distance, feelings, interpersonal communion or even communication in general do not simply disappear, but they gain additional nuances that may be expressed through other channels of communication.

Finally, to reach the third research objective, a second question was asked as well, namely: *What means of two-way communication have you used to share your deep feelings/emotions with your colleagues during the pandemic?*

The *phone* (average 4.36) and the *laptop/computer* (average 4.10) are, by far, the devices most often used to communicate with colleagues. The *tablet* (average 1.75), however, was not used so often for a two-way communication during the pandemic. These results were expected, because, with a history of over 100 years, lately, the *phone* has become more technologically advanced, being the most used communication device during the pandemic (Table 5). The *computer/laptop* closely follows and is utilized by most of the respondents for the online courses, which explains, in fact, the results obtained (Table 5). Since these devices were the most used ones for daily professional and personal communication, it is understandable that they were employed to communicate deeper feelings or experiences, too.

**Table 5.** Statements pointing to the device used to communicate with colleagues during the pandemic.

Statements Pointing to the Device Used to Communicate with Colleagues during The Pandemic	Average
1. Phone	4.36
2. Laptop/Computer	4.10
3. Tablet	1.75

#### 7. RO4. The respondents' Expectations of Changing the Communication Behaviors when the COVID-19 Pandemic Is Over

In order to achieve the fourth research objective, the participants in the survey were required to express their opinions on some behaviors that might or might not be preserved also in post-pandemic times. As can be seen in Table 6, the frequency of the behaviors



listed were below the mid-point value. The results obtained are grouped and interpreted according to the statistical average (i.e., the arithmetic mean of the subjects' answers on a scale from 1 to 5). Thus, above the statistical average of 2, the following results were obtained: *I will keep on using the new communication means discovered during the pandemic (ZOOM, Google Meets, etc.) out of convenience (2.51)*; *I will adopt/keep on using the fist salute (2.40)*; *I will stop wearing makeup even if I the face mask is no longer needed (2.11)*; *I will raise my eyebrows to express my disagreement (2.04)*. The new communication tools (ZOOM, Google Meets, etc.) are a major breakthrough made during the COVID-19 pandemic that may be used in post-pandemic times, too. They can be the pathway towards the hybridization of the education system, i.e., face-to-face activities may be utilized together with the activities that can be organized with the help of these tools, which, in fact, provide excellent solutions for simultaneous and distance communication, suited to a dynamic society. Alternative forms of greeting could also be a great discovery, as shown by the results.

**Table 6.** Expected post-pandemic behaviors on a scale from 1 to 5.

Expected Post-Pandemic Behaviors	Average
I will keep on using the new communication means discovered during the pandemic (ZOOM, Google Meets, etc.) out of convenience	2.51
I will adopt/keep on using the fist salute	2.40
I will stop wearing makeup even if the face mask is no longer needed	2.11
I will raise my eyebrows to express my disagreement	2.04
I will generally speak louder	1.98
Crossing the street when I meet people I know will no longer be perceived as an offensive act, but rather as an act of responsibility for everyone's safety, an aspect I became aware of during the pandemic	1.97
I will close my eyes/blink to express my consent	1.89
I will rarely touch my loved one in public because proper hygiene conditions cannot be ensured	1.86
Staring will be considered aggressive once the face mask is removed	1.84
I will only settle for technology-mediated ways of getting to know a person	1.62
I will give up the habit of hugging my loved ones when I see them again	1.59
I will adopt/keep on using the elbow bumps	1.53
I will adopt/keep on using the footshakes	1.34
I will use the video chat more often to satisfy my need for intimacy	1.31

To capture the clustering of the responses, an exploratory factor analysis (EFA) has been conducted. Thus, the item fidelity and the inter-rater correlation have been calculated using the Cronbach alpha coefficient [80,81]. The alpha fidelity item coefficient and the halving method for estimating fidelity assess the internal consistency of the questionnaire items, i.e., the items tend to measure the same thing.

The Cronbach's alpha coefficient has the value of 0.78 (Table 7), ensures the internal consistency of the items chosen and, thus, allows the factor analysis [81–83].

**Table 7.** Cronbach's alpha coefficient value for fidelity estimation.

Cronbach's Alpha	n of Items
0.78	11

Table 8 illustrates the value of the KMO measure of sampling adequacy test, which is close to 1 ( $0.77 p < 0.01$ ), thus validating the study. The 77.7% of the variance of the 11 variables is explained by the three extracted factors. Using the KMO criterion, only the factors with a number of eigenvalues, greater than one, i.e., having an explanatory power greater than a single variable, are selected (Table 9).

**Table 8.** Value of the Kaiser–Meyer–Olkin (KMO) measure of sampling adequacy test for verifying the factor analysis veracity.

KMO and Bartlett's Test		
Kaiser–Meyer–Olkin Measure of Sampling Adequacy		0.77
Approx. Chi-Square		1131.31
Bartlett's Test of Sphericity	Df	55
	Sig.	0.00

**Table 9.** The three extracted factors.

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.65	33.26	33.26	3.65	33.26	33.26	2.12	19.35	19.35
2	1.28	11.65	44.92	1.28	11.65	44.92	2.05	18.63	37.98
3	1.09	9.94	54.86	1.09	9.94	54.86	1.85	16.87	54.86
4	0.89	8.10	62.96						
5	0.82	7.45	70.41						
6	0.76	6.93	77.35						
7	0.71	6.49	83.84						
8	0.66	6.00	89.85						
9	0.52	4.75	94.61						
10	0.34	3.11	97.72						
11	0.25	2.28	100.00						

Barlett's test of sphericity shows the Hi-squared value (1131.31), the number of degrees of freedom ( $df = 55$ ) and the associated probability ( $p < 0.01$ ), which indicates that the dataset is suitable for an exploratory factor analysis.

Table 9 shows that only three factors with eigenvalues higher than 1 have been extracted, which means that they have greater explanatory power than a single variant. The other factors, that have not been extracted, present an error variance that cannot be explained. The factors rotation shows that the first factor explains 19.35% of the variance, the second factor explains 18.63% of the variance, and the third explains 16.87% of the variance. In total, the two factors explain 54.86% of the variance, which is a very good percentage for this study. In Table 10, the variables are ordered according to their saturation in the extracted factors.

**Table 10.** Table of variable–value loadings in each extracted factor, obtained after factor rotation.

Rotated Component Matrix			
	Factors		
	Relational Attitudes Factor	Greeting Forms Factor	Nonverbal Reactions Factor
Crossing the street when I meet people I know will no longer be perceived as an offensive act, but rather as an act of responsibility for everyone's safety, an aspect I became aware of during the pandemic	0.74	0.10	0.07
I will rarely touch my loved one in public because proper hygiene conditions cannot be ensured	0.71	0.24	0.00
I will stop wearing makeup even if the face mask will no longer be needed	0.56	0.09	0.13
I will keep on using the new communication means discovered during the pandemic (ZOOM, Google Meets, etc.) out of convenience	0.51	0.08	0.20
I will generally speak louder	0.50	0.19	0.25
At the end of the pandemic, I will adopt the footshakes	0.16	0.89	0.07
At the end of the pandemic, I will adopt the elbow bumps	0.15	0.84	0.15
At the end of the pandemic, I will use the video chat more often to satisfy my need for intimacy	0.27	0.55	0.19
At the end of the pandemic, I will raise my eyebrows to express disagreement	0.24	0.00	0.83
At the end of the pandemic, I will close my eyes/blink to express agreement	0.21	0.14	0.81
At the end of the pandemic, I will consider persistent staring as aggressive	0.03	0.26	0.55
Extraction method: principal component analysis.			
Rotation method: varimax with Kaiser normalization.			
Rotation converged in 5 iterations.			

Therefore, the physical distancing and face mask wearing imposed by the COVID-19 pandemic have reshaped the interpersonal communication, causing changes in people's communication behaviors. The exploratory factor analysis (EFA) revealed three factors behind the actions of the investigated surveyees: *factor 1—relational attitudes*, *factor 2—greeting forms* and *factor 3—non-verbal reactions*.

**Factor 1—Relational Attitudes Factor**—loads the variables values included in the questionnaire with the following saturations: *crossing the street when I meet people I know will no longer be seen as an offensive act, but rather as an act of responsibility for everyone's safety, an aspect I became aware of during the pandemic* with 0.74; *I will rarely touch my loved one in public because proper hygiene conditions cannot be ensured* with 0.71; *I will stop wearing makeup even if the face mask is no longer needed* with 0.56; *I will keep using the new communication means discovered during the pandemic (ZOOM, Google Meets, etc.) out of convenience* with 0.51; *I will generally speak louder* with 0.50.

Avoiding close contact with other people either by crossing the street when we see them or by not expressing tenderness whenever no proper hygiene conditions can be ensured might look like “running away from each other”, but contextually interpreted, they rather show an increased attention, or responsibility towards others and even a form of love expressed in a way that is different from the usual way of communicating it. The

fact that the women/ladies will no longer wear makeup, when the face mask is not needed anymore, makes us think of carelessness, but interpreted from a different perspective, it can also be a form of authenticity. The interpersonal communication is a concept that refers to the way we dress, wear makeup, greet, and so on. The obligation to add elements to this social concept, taking face masks as an example, increases the pressure on this communication construct and the tendency to get rid of them, to be more authentic in communication. Hence, the tendency to stop wearing makeup even after the wearing of a face mask is not mandatory anymore. It can also be interpreted as a natural inertia, after a period when makeup was replaced by face masks. The frequent use of technology in communication will continue even after the pandemic restrictions are lifted, because it is convenient, and it ensures a high-speed message exchange. Learning, especially technical learning, requires effort, and this effort of learning technical communication during the pandemic restrictions has contributed to acquiring the skills needed for a technology-mediated communication, which will presumably be used in the future. To compensate for the verbal message loss caused by the wearing of the face mask, the respondents confessed that they started to speak louder, as receiving a verbal message “challenged hearing in many situations” (Table 2).

**Factor 2—Greeting Forms Factor**—loads the *variables—values* included in the questionnaire with the following saturations: *at the end of the pandemic, I will adopt the footshake* with 0.89; *at the end of the pandemic, I will adopt the elbow bumps* with 0.84; *I will resort to video chat more often to satisfy my need for intimacy* with 0.55.

The hygiene measures needed during the pandemic have determined the authorities to present alternative greeting options that the citizens may utilize: the footshake or the elbow bump. These are forms of interpersonal communication learned during the pandemic that will be useful after all restrictions are lifted. The pandemic and its restrictions have also brought about changes in the intimate lives of some people, hence the trend of choosing “video chat as an alternative to intimate relationships.”

**Factor 3—Non-verbal Reactions Factor**—loads the *variables—values* included in the questionnaire with the following saturations: *at the end of the pandemic, I will raise eyebrows to express disagreement* with 0.83; *at the end of the pandemic, I will close my eyes/blink to express agreement* with 0.81; *at the end of the pandemic, I will consider persistent staring as aggressive* with 0.55.

Wearing the face mask impeded communication at the level of the mouth and nose, which led to discovering other ways of compensating for the loss in the message transmission and reception. Thus, *raising eyebrows, closing eyes/blinking* and *staring persistently* are only some solutions found to overcome the communication barriers created by the pandemic restrictions. Moreover, at the end of the pandemic, the non-verbal reactions described above might gain an additional, different symbolism that enriches our cultural background.

This study also has limitations as the sample consists only of students, which narrows the diversity of the population affected by these restrictions. Even if the sample size is sufficient for a margin error of  $\pm 5\%$ , multiple samples with greater diversity and a substantially larger number of respondents would still be needed to make better predictions. Moreover, the students of Politehnica University of Timisoara were the only ones surveyed since the authors did not have access to other university students due to the pandemic rules that were imposed.

## 8. Conclusions

Even though the COVID-19 pandemic has struck humanity, imposing restrictions on verbal and non-verbal communication as well as on some aspects of people’s personal lives, interpersonal communication is a human gift that cannot be taken away so easily and, no matter the obstructions it might encounter, it does not disappear, but it adapts. As such, this study has revealed the ways in which the interpersonal communication has managed to adapt as a result of the rules imposed by the pandemic, especially social distancing and

wearing the face mask. Moreover, it has also captured each respondent's future projection of these changes in their own lives.

As far as the verbal communication is concerned, the surveyed students seem to have embraced the new rules very well by switching without an effort to the online world, even if constrained to do so. Technology and, thus, smart devices have also demonstrated their worth not only in the educational field, but also in the healthcare domain [84,85], helping people to stay connected for different purposes. At the same time, when wearing face masks, in order to make themselves understood better, students seem to have resorted to articulating the sentence or repeating it, using their voice as compensation, as some researchers have also noted [39], although other researchers have shown that this might lead to vocal fatigue and discomfort, especially in professional settings [86]. It can also be observed that some of the respondents enjoyed the social distancing rules, which reinforces the findings in other studies stating that personality traits (being an extrovert or an introvert) play an important part in how well people adapt to working from home and to learning online [55,87].

As regards non-verbal communication and the use of face masks, the study posits that the non-verbal behaviors adopted by the respondents in such situations, when the lower part of the face is covered, are to focus on the interlocutor's upper part of the face (eyes) and on trying to hear more accurately as well as to use larger arm gestures or paralinguistic means such as the loudness of the voice. The lower part of the face is paramount in expressing emotions [88], even if only positive ones as some studies suggest [89,90]; therefore, it is important to transfer the weight of the covert part to the remaining unmasked part of the face, i.e., the eyes or eyebrows [40]—even though prolonged eye contact may signal discomfort for the recipient [91]—or to gestures and paralinguistic, such as raising the voice [44].

The way the surveyed students perceived that social distancing has affected their personal lives is another aspect highlighted by the research. Consequently, since all the academic courses had moved online, the participants in the survey reported longer hours spent in front of the computer screens and an online communication etiquette that they had adopted quite quickly and that they would have probably not used in face-to-face interactions, e.g., keeping silent and not interrupting the person speaking online, being more punctual in the online world, paying more attention to the online interlocutors' reactions, being more disciplined in the online communication exchange leading thus to more harmonious discussions in the online meetings. The fact that some students were more punctual, more focused and more collaborative in the online classes is also emphasized by a Thai study on EFL teachers' perception of Bangkok students during the pandemic [92]. Furthermore, since the phone is the device that college students mainly use for leisure [93], it is also used, along with the computer or laptop, to communicate personal feelings and emotions during the social distancing time.

Moreover, the respondents have stated that wearing face masks in the physical world has not hindered their interpersonal communication because they have resorted to other channels of communication such as voice, eyes and gestures. This stresses again the fact that interpersonal communication is inherently human and cannot disappear, but that, instead, it finds other means to manifest itself.

One of the study's most important findings is the students' perspective on what interpersonal communication will look like at the end of the pandemic. The factor analysis that was used highlighted three factors behind the actions of the surveyed subjects, i.e., Factor 1—relational attitudes, Factor 2—greeting forms and Factor 3—non-verbal reactions. In other words, students believe that all these restrictions will most likely leave their mark on the way people greet each other in the future (distancing, touching fists or ankles) and through slightly more emphasized non-verbal reactions (raising eyebrows to express disagreement, closing the eyes/blinking to express conversational agreement or an aggressive perception of prolonged eye contact). This result is also backed up by a study carried out on students at Trier University in Germany, where 57% of the respondents



have declared that they do not want to return to the pre-COVID-19 greeting forms after the pandemic due to the fear of contacting the disease or to already being used to the non-haptic greeting behavior [94].

Other interesting aspects revealed by the research are related to the students' perceived changes in relationship communication when the pandemic ends: crossing to the opposite sidewalk when meeting someone as a means of protection, not caressing the loved one in public if hygiene conditions are poor, giving up makeup even if not wearing the face mask as well as continuing to employ the new technologies used during pandemic times in the online communication [95].

If the pandemic has affected our lives on various levels, fact highlighted by this study, its results demonstrate the people's ability to adapt to emergency situations. The solutions found by our subjects and backed up by other studies as regards the verbal and non-verbal communication are paramount in showing the human adaptive capacity, which will represent important research topics for future crisis situations.

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