

DIGITAL COMMUNICATION TRANSFORMATION: IMPACT ON UNDERGRADUATE STUDENTS IN THE PLATFORM ECONOMY

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Abstract: Digital communication transformation influences both our communication habits and organizational structures of enterprises because nowadays digital communication represents the main element of human interactions and economic activities. After the pandemic, the role of digital communication in education has become crucial due to the forced transition to Education 4.0 paradigm generated by the 2021 lockdown. The main purpose of this study is to examine the influence of digital communication transformations on undergraduate students, as well as to understand how these changes affect students' personal and academic communication. The methodological approach of this research paper applies a qualitative perspective by the means of an online survey disseminated to students (n=167) from the Bucharest University of Economic Studies. Findings of this survey reveal the profound impact of digital communication transformation on undergraduate students' habits and perceptions. Additionally, the results of this study suggest that digital communication facilitates more frequent and efficient interactions with both peers and professors, which enhance academic and personal engagement. Main conclusion of this research article suggest that digital communication instruments play a central role in Education 4.0 and must be adopted by all educational institutions with the aim of equipping students with digital skills that are mandatory in the digital era. Further research should focus on examining the effects of certain digital tools on students' academic performance and motivation, as well as on the impact of digital communication on the development of critical thinking and problem-solving skills.

Keywords: digital communication, Education 4.0, digital skills, undergraduate students, online survey.

JEL Classification: O33, I23, Z18

1 Introduction

Digital transformation of recent decades has severely reshaped the way people communicate, socially interact or make business. If digital transformations have taken over all organizational fields and have fundamentally changed people's habits (Berman, 2012) it is evident that the

field of communication has also been affected by the metamorphosis into digital communication tools: emails, direct messaging, social media platforms, videoconference platforms etc. (Eurostat, 2022). Unfortunately, these modern changes in the ways people communicate nowadays have also numerous negative effects on teenagers. For instance, there is a negative impact of digital overload and social media addiction on academic performance, as well as on the emotional state because it generates in fact loneliness (Jabeen et al, 2023).

The massive lockdown from 2021 has created the perfect environment for the polyvalent analysis of the online learning on both students and teachers. Studies conducted during the COVID-19 pandemic on undergraduate students demonstrate that they prefer face-to-face activities that integrate digital technologies rather than using strictly digital equipment, but they also acknowledge the benefits of reduced cost of living implied by the e-learning period (Antonopoulou et al., 2023; Crew & Märtins, 2023).

After the end of the pandemic, there was a visible shift towards Education 4.0 that caught the attention of many scholars (Ahmed & Hasnine, 2023; Caccavale et al., 2024; Hoffmann et al., 2024; Mosleh et al., 2024) who were interested in examining the impact of AI and educational technology on undergraduate students and university professors.

2 Literature review

With respect to the pedagogical approach, digital technologies can be used for various methods and strategies that produce an amplification of the students' motivation and engagement during courses: collaborative learning, gamification, inquiry-based learning etc. First of all, recent studies show that the methodological framework based on digital collaborative learning not only that contributes to innovation and creativity, but also enhances academic performance and social outcomes for students (Li et al., 2023; Møgelvang et al., 2023). Secondly, the systematic review of Balalle (2024) demonstrates that applying digital gamification methods during courses significantly increases students' motivation and helps developing their digital skills. Similarly, many other scholars have investigated the effects of digital technologies on undergraduate students (Hanaysha et al., 2023; Smolağ et al., 2023; Narmaditya et al., 2024) and on teachers (Bourlakis et al., 2023).

On one hand, the research article of Bourlakis et al. (2023) proves that the amplification of pedagogical approaches caused by the expansion of educational activities into online settings has a profound negative effect on the increased level of technostress manifested by teachers who feel unable to keep up with the constant multiplication of educational platforms and applications that emerge daily. On the other hand, studies of Hanaysha et al. (2023) and Narmaditya et al. (2024) show that teachers' level of digital skills are strongly correlated with the development of students' digital skills and academic performance, while social media consumption has no effect on the development of students' digital competencies (Smolağ et al., 2023).

It is very important to highlight the fact that many researchers (Ahmed & Hasnine, 2023; Caccavale et al., 2024; Hoffmann et al., 2024; Mosleh et al., 2024) agree that popular chatbots like Chat GPT cannot be reliable due to very many reasons, but course-specific chatbots can develop students' wellbeing because they are in fact large language models (LLMs) able to

personalize each students’ learning experience using their inputs. For example, the research article of Caccavale et al. (2024) demonstrates that virtual tutors could substitute chemical engineering teachers, even if virtual tutors are not real people, but only chatbots based on LLMs. Consequently, the meticulous analysis of the scientific literature in the field of economics of education and more specifically in the realm of digital education has permitted the identification of the following research hypotheses:

H.1. Digital communication transformation positively affects the academic information efficiency and accessibility.

H.2. Digital educational tools raise health concerns and negatively impact students’ mental health.

3 Methodology

The main aim of this research paper is to identify the impact of digital communication transformations on the undergraduate students (n=167) from the Bucharest University of Economic Studies. Hence, the research is guided by the following research questions:

RQ1: How does digital communication transformation affect information accessibility and efficiency among students?

RQ2: What are the socio-psychological challenges caused by the digital instruments adoption for the academic communication?

In order to answer these questions, the methodological approach used is mainly qualitative and implies an online survey based on a Google Forms questionnaire. Responses were collected between 23 and 30 of May 2024 and the questionnaire was disseminated via institutional platforms.

Next, data was processed and analysed using Excel, after all collected data were exported from Google Forms. After data cleaning, 167 valid responses were retained.

4 Findings

Figure 1 presents the gender and age profile of the respondents, with 63.5% of the participants being females and 85% of them aged 20 to 22. The young age of the survey participants includes this population category into the digital natives and influences their perception towards digital communication.

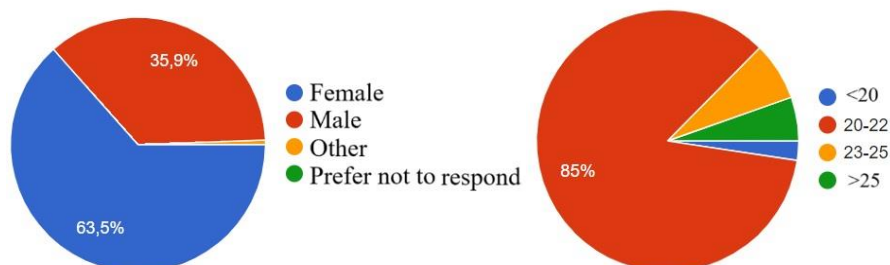


Figure 1: Participants distribution according to their gender (left, %) and age (right, %)

Source: authors’ contribution.

Next, Figure 2 shows the respondents distribution on faculties and year of study, with the majority of the participants from the Faculty of Agrifood and Environmental Economics (51%), followed by the students from the Faculty of Management (17%). With regards to the year of study, most of the participants are enrolled in the second (52%) and the third year of study (29%), which confirms their experience with all the digital communication transformations implemented by the Bucharest University of Economic Studies over the period of 2021-2024.

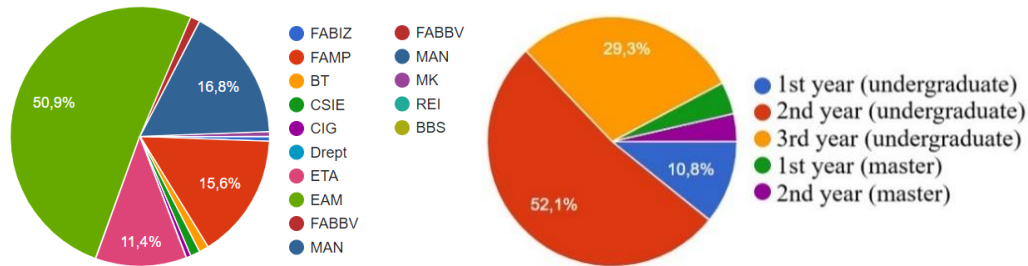


Figure 2: Participants distribution according to their faculty (left) and year of study (right, %)

Source: authors' contribution.

In addition, Figure 3 indicates the frequency of different social platforms utilization by the students questioned in this study when they were engaged in educational activities.

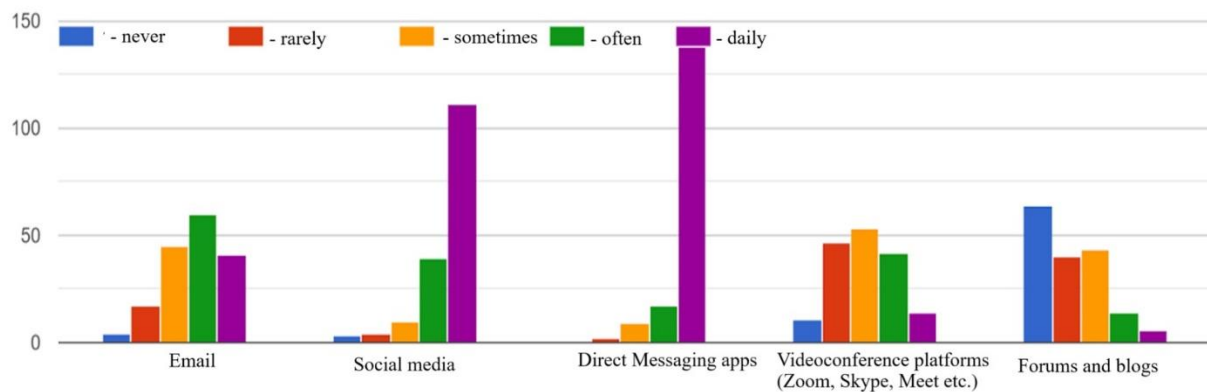


Figure 3: Frequency of different social platforms utilization for academic purpose (%)

Source: authors' contribution.

According to Figure 3, the most utilized platforms are WhatsApp (83%) and Facebook (66%), followed by blogs (38%), and email (36%). These results indicate students' preference towards accessing social platforms that offer both direct messaging and socializing functions.

Moreover, Figure 4 illustrates that most of the participants (54%) declared to use social platforms when engaging in academic communication activities, while 38% of them preferred direct messaging applications, and only 6% of students have chosen the email.

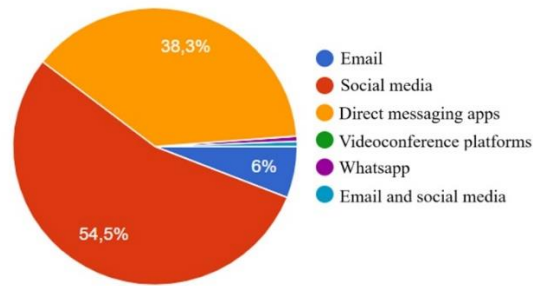


Figure 4: Digital communication tools' preference for academic purpose (%)

Source: authors' contribution.

Next, Figure 5 presents the students' perception towards academic communication improvement due to digital transformation, with 53% of them having declared that digital transformation significantly improved communication, while 30% consider that communication has only been moderately improved, and 17% have seen no improvement. Consequently, students' perception towards digitalization's impact over academic communication seems to be rather positive than negative.

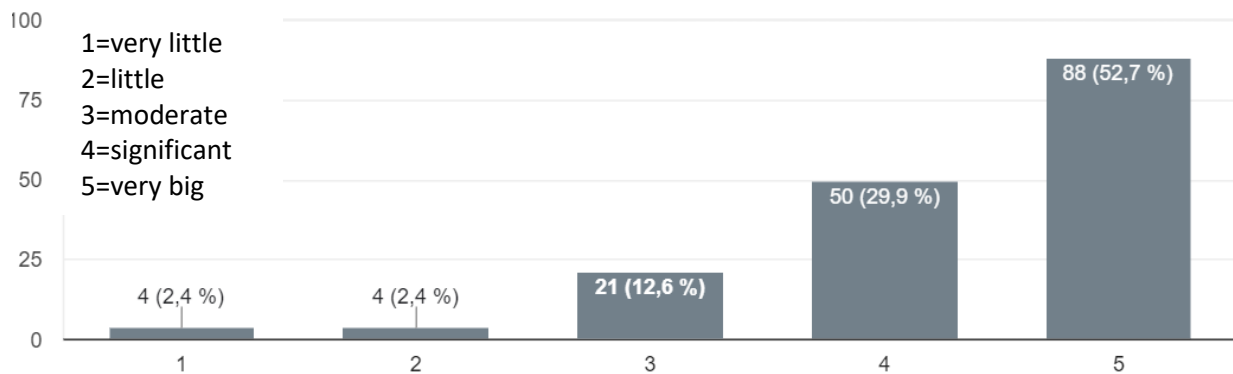


Figure 5: Academic digital communication improvement scale as perceived by students (%)

Source: authors' contribution.

Furthermore, Figure 6 analyzes which communicational aspects have already been improved by digital transformation. Most of the participants declared that the quick speed (84.4%) and accessibility (80.2%) are the main communicational aspects improved by digital technologies. However, Figure 6 demonstrates that participants in this study have also observed other important aspects of the academic communication improved by digital instruments: collaboration (47.9%), clarity (40.7%), and feedback (35.9%).

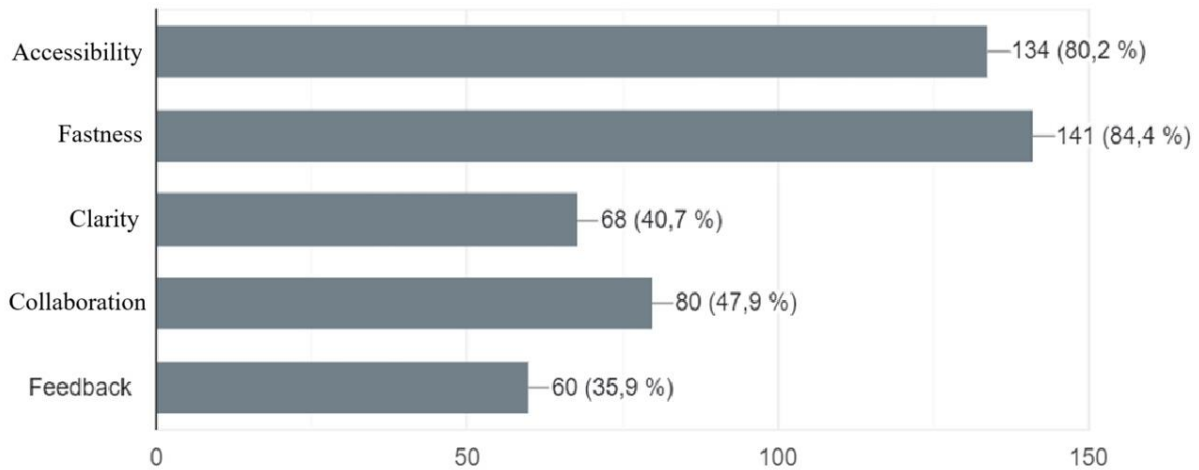


Figure 6: Aspects of academic communication improved by digital transformation (%)

Source: authors' contribution.

Nonetheless, academic digital communication also presents many challenges determined by the digital technologies dependence (Figure 7). The main challenges reported by the participants in this study are: technical difficulties (59%), misunderstandings (49%), and lack of direct interaction (41%). Other challenge indicated by the respondents is digital overload (20%), while only 3 persons declared a lack of obstacles in digital communication. Overall, these challenges highlight the need for more robust technical solutions implementation, as well as for efficient digital interaction management strategies.

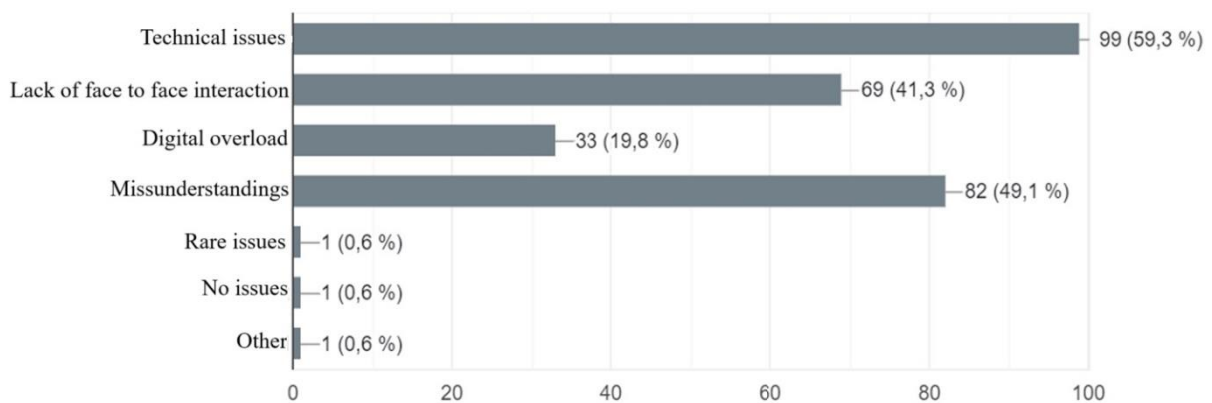


Figure 7: Challenges encountered in academic digital communication (%)

Source: authors' contribution.

Conversely, Figure 8 indicates the fact that 62% of the participants consider that digital transformation will positively impact future communication, 29% appreciate that the impact will be moderate, and another 8% are sceptic about the changes suffered by the communicational process. Hence, this overall optimistic perception suggest the fact that digital natives manifest positive expectations towards digital communication evolution.

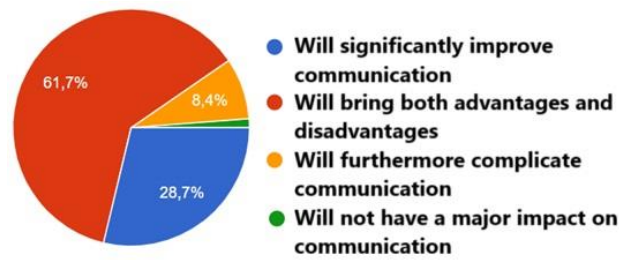


Figure 8: Students’ opinion towards the impact of digital transformation over future communication (%)

Source: authors’ contribution.

Next, Figure 9 analyses the appetite of digital natives for technological innovation and illustrates their preference for academic digital communication improvement that includes: integrated academic digital platforms for educational purposes (47%), artificial intelligence applications for personalized assistance (32%), and virtual reality technologies for academic use (18%). These results demonstrate students’ interest for advanced technologies that have the potential to improve academic interactions and communication.

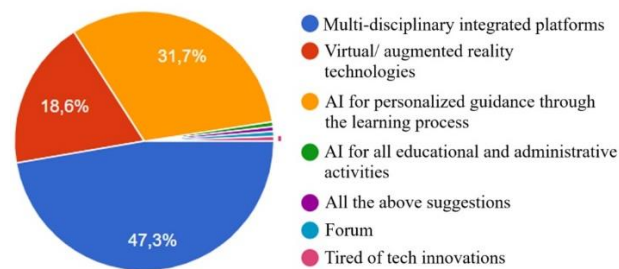


Figure 9: Tehnological innovations that may improve academic communication (%)

Source: authors’ contribution.

Figure 10 presents the students’ degree of satisfaction towards the technical support of digital platforms offered by the Bucharest University of Economic Studies, with 70% of the participants having declared to be extremely satisfied or very satisfied, another 26% expressed a moderate degree of satisfaction, and only 4% have manifested a high degree of dissatisfaction.

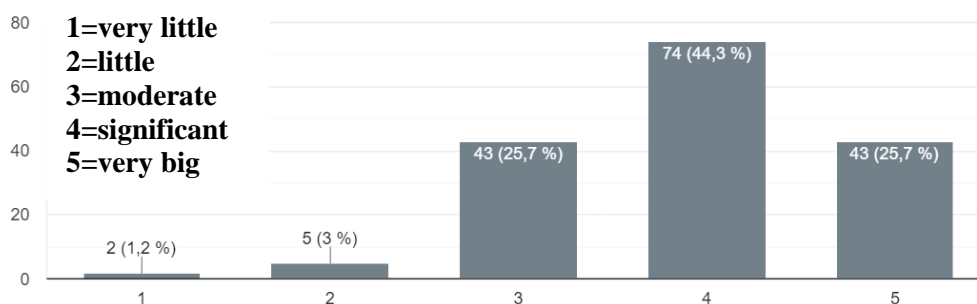


Figure 10: Students’ satisfaction towards the academic technical support (%)

Source: authors’ contribution.

On one hand, Figure 11 indicates that the main perceived advantage of academic digital communication is the accessibility of educational resources (65%), followed by the easiness of peers and professors collaboration (21%), and flexibility (13%). These findings suggest that digital native students prefer the efficiency and comfort brought by digital communication consumption.

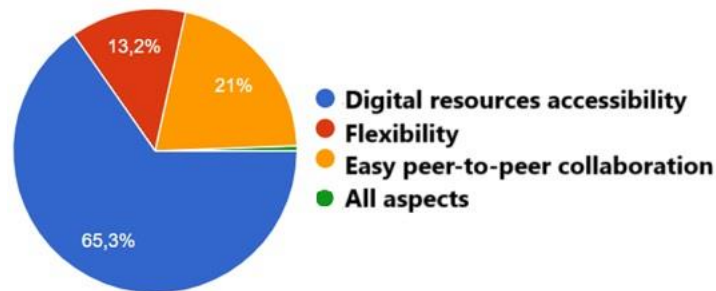


Figure 11: The main perceived advantage of academic digital communication (%)

Source: authors' contribution.

On the other hand, Figure 12 indicates that 32% of the participants believe that digital transformation have negatively impact their mental health, while 20% of the respondents consider that digital communication transformation have not affected negatively their well-being. The other half of the participants in this study appreciate that the impact of digital communication transformation was moderate, which demonstrates that students acknowledge the negative influence of digital overload on their mental health.

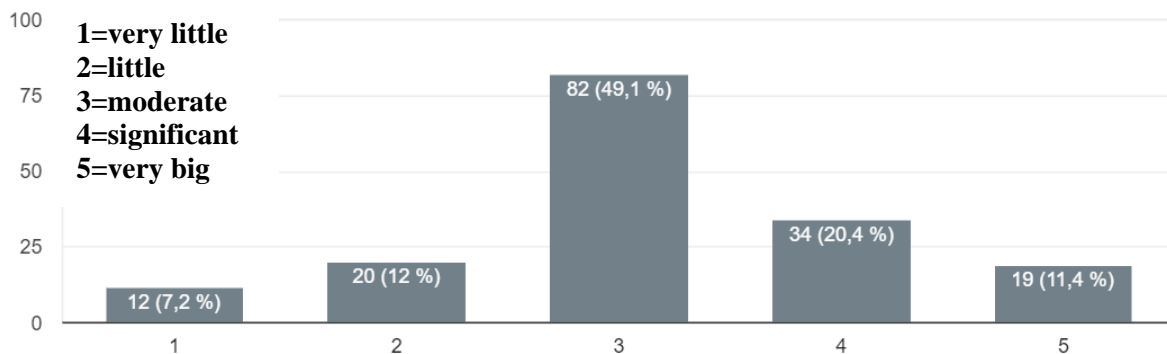


Figure 12: The impact of digital communication transformation over students' mental health (%)

Source: authors' contribution.

Furthermore, Figure 13 shows the amount of time spent by students for both academic (left pie) and personal communication (right pie) using digital platforms. Data from Figure 13 demonstrates that one third of the students (35%) uses twice less time digital communication platforms for academic purposes (1-2h) than for personal use (4h). Students' intense digital platforms consumption for 2-3 hours daily is manifested by a quarter of the participants in the survey, while 24% of them indicate an excessive use of digital communication platforms for three to four hours a day but for personal use instead of academic purposes.

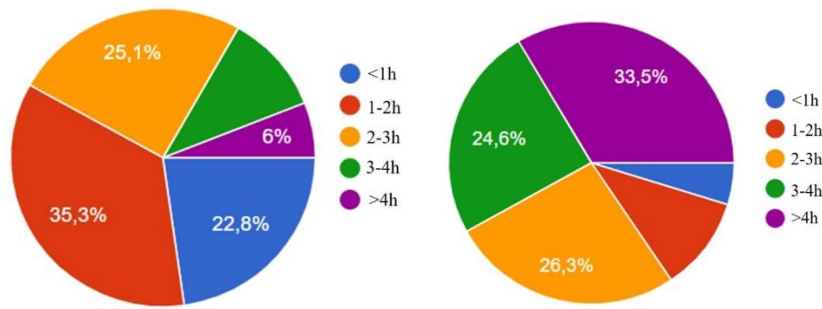


Figure 13 The amount of time spent on digital communication platforms for academic (left) and personal purpose (right, %)

Source: authors' contribution.

The last item from the survey based on questionnaire was an open question that allowed participants to express their opinion towards digital communication transformation. Based on their responses, data was classified in three clusters: positive, neutral, and negative opinions. As expected, many participants indicated positive opinions and highlighted the high accessibility and instantaneous speed of information via digital communication tools. One interesting recommendation suggested by students interviewed referred to a chatbot based on AI integrated into the academic platforms that could help answer questions, access easier the content needed or even facilitate administrative tasks.

Conversely, another student emphasized the digitalization' potential to dilute young people's abilities to interact face to face and communicate directly because youngsters prefer in their vast majority to communicate via technological environments. For this reason, digital overload can increase young population's level of anxiety and can amplify the negative perception towards traditional social interactions.

Similarly, another responses indicated that university teachers lack digital adaptability and digital skills at least as advanced as their students' level of digital competencies. For example, a frequent critique referred to the use of outdated digital educational resources by many professors, which only decrease students' level of engagement or active attention during courses.

Additionally, students also manifested concerns regarding the use of different artificial intelligence platforms that discourage the development of critical thinking, creativity, and problem-solving skills.

5 Discussion

The results of the current survey confirm the conclusions emphasised by the scientific literature with regards to digital communication transformations' impact on the young population, since the students' perception towards the impact of digitalization on communication mainly points out positive aspects such as accessibility improvement and greater speed of communication.

Nonetheless, scholars in this field of knowledge (Bourlakis et al., 2023) also trigger the alarm when discussing the challenges associated with digital transformations and related to the negative effects on youngsters' mental health. This is confirmed by 31% of the participants in this survey that signalled a very big negative effect of digital communication transformation on their wellbeing.

6 Conclusion

Despite the fact that this research paper provides important results regarding the impact of digital communication transformation on undergraduate students, there must also be acknowledged several limitations. Firstly, the sample of this study only included students from the Bucharest University of Economic Studies, which can affect the generalization of our results. Secondly, the online survey reflects exclusively the respondents' subjective perceptions, without any objective measurement of academic performance or engagement. Future studies could include several higher education institutions and apply a mixed-method approach that combines quantitative and qualitative methods.

Taken into consideration the findings of this study, most of the participants positively appreciated the technology' potential to facilitate quick access to educational resources and information, which not only responds the first research question (RQ1) of this study, but also confirms the first research hypothesis (H.1.).

Even though the digitalization' advantages are extremely numerous, this article has also identified challenging difficulties raised by the excessive use of technological tools for academic or personal communication, that sometimes lead to digital overload and even mental health issues. These conclusions answer the second research question (RQ2) of this paper that scrutinizes the socio-psychological challenges caused by the digital instruments adoption for academic communication, but in the same time it also confirms the second research hypothesis (H.2.).

This study also confirms Gen Z's preference for direct messaging applications for both academic and personal communication. For instance, WhatsApp and Facebook are the most accessed platforms for academic communication because students enjoy and are very satisfied with the accessibility and fastness of these digital platforms. Similarly, students interviewed also expressed their interest in using for educational purposes many different technological advancements that have the capability to improve academic interactions, such as chatbots based on AI that could be integrated into the digital platforms managed by the Bucharest University of Economic Studies.

The contribution of this research article in the field of knowledge is based on its main conclusion that points out the key role played by digital communication in shaping young population's habits and perception over our societies, while digital technologies continue to expand and substitute traditional methods that are no longer needed in the current digital era.

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