



- NEEDS ANALYSIS -



Improving communication skills
in a digital, international
environment



Research report



Intellectual output 1

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Abstract

The COVID-19 Pandemic footprint on higher education along with the globalization of work markets pose new challenges to the professional competencies students should be equipped with. The present research addresses this issue by investigating intercultural and interdisciplinary communication, student international training necessity and foreign language learning needs within the digital channels COVID-19 Pandemic has imposed. Self-report data were collected from a research sample of 308 students, teachers and business sector professionals originating from Croatia, Greece and Portugal. Results indicate that training on intercultural and interdisciplinary communication is considered important, teamwork and communication skills stand out as the most significant professional competencies and spoken fluency along with knowledge of discipline specific terminology constitute the foreign language needs of students. These findings indicate competencies and needs which if included in university undergraduate programmes of study will enable students to be better equipped for their careers in the context of global competence as described in the OECD report 2020.

Key words: Intercultural communication, interdisciplinary communication, digital communication tools, teamwork, global competence, OECD 2020 report



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1. Introduction

The INCLUDE project (full project title: Intercultural Communication and Linguistic Upgrade in a Digital Environment) is an Erasmus+ KA2 strategic partnership project developed and implemented by Bjelovar University of Applied Sciences (Croatia), Aristotle University of Thessaloniki (Greece) and Instituto Superior de Administração e Línguas (Portugal). The project is set in the context of the global onset of the COVID-19 pandemic that has brought immense changes to the manner people communicate and engage in professional activities. Language and intercultural communication (LIC) teachers at higher education institutions teach courses that heavily depend on communication and they have had to invest more time and effort into transforming their teaching methods and materials into ones that are applicable in online teaching. At the same time, LIC teachers are the ones who have to prepare their students for real-life communication in a virtual setting as well as to enable them to acquire the Global Competence, which “requires a combination of knowledge, skills, attitudes and values successfully applied to global issues or intercultural situations” (OECD, 2018).

The project is operated by an international project team from three partner institutions from Croatia, Greece and Portugal and it involves 30 students from all partner universities, as well as a solid base of industrial partners.

The main objective of the INCLUDE project is to boost students' employability on a global scale by ensuring an inclusive, progressive, high-quality language and communication course in a range of languages (English, Croatian, Portuguese, Greek) at higher education institutions across Europe (INCLUDE, 2021). The project involves three intellectual outputs oriented towards developing a high-quality course in Intersectoral communication skills in a digital, intercultural environment.



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The first intellectual output that has been developed and implemented during the initial phase of the project involves the intersectoral needs analysis. The need for conducting such research was triggered by a small-scale pilot survey conducted at the three partner universities (around 100 responses were collected in total) that showed the need for developing a course in communication skills in a digital, international environment. According to the pilot survey, it may be concluded that students are aware that the future of professional communication involves intersectoral/*interdisciplinary as well as* intercultural aspects, since the digital era has additionally been reinforced by the consequences of the global COVID-19 pandemic that imposed teleworking and distance learning. Therefore, it was concluded that a systemic, thorough needs analysis should be carried out before the project team starts working on the teaching curriculum and teaching materials, for the purpose of assuring that all nuances of the stakeholders' needs as related to intersectoral/*interdisciplinary*, intercultural communication in a digital environment are taken into account.

The impact and transferability potential of this research are related to other intellectual outputs within the INLCUDE project (course curriculum and course materials), whose content significantly depends on the results of the data analysis of the target groups' needs as related to the literature review reported in chapter 2. The research questions are presented in Chapter 3 along with some hypotheses. The content of the questionnaire and the research methods are described in Chapter 4 (Methods), while the results of the study involving descriptive statistics on all questionnaire items, as well as inferential statistics referring to the questionnaire items that are relevant for the aforementioned research questions may be found in Chapter 5 (Results). The final two chapters (6 Discussion and & 7 Conclusion) provide further elaboration of the obtained results and offer a conclusion, based on which the course curriculum and course materials in Intersectoral/*interdisciplinary* communication skills in a digital, intercultural environment are to be developed.

2. Literature Review

Over the last decades, the international activities of higher education institutions considerably expanded, giving students the opportunity to participate in foreign language programs and providing them with intercultural understanding and international perspectives (Altbach & Knight, 2007). Furthermore, the perceived importance of soft skills, such as communication skills, teamwork, and cultural awareness, has significantly increased (Schulz, 2008).

Currently, it is globally recognised that employers are increasingly emphasizing the importance of these skills (Tracey 2004, Schulz, 2008). A study by Hodges and Burchell (2003) examined the perceptions of business employers of the importance of different skills and reported that eight out of top ten skills were soft skills.

In this sense, several studies have highlighted the importance of including soft skills in the curriculum, thus making it easier for students to acquire them (McEnrue *et al.*, 2009; Howe, 2010). However, graduates' lack of soft skills is one of the most discussed issues within the literature on higher education.

This lack of skills has been criticised by employers, who blame higher education for not preparing students for today's job market (Hurrell 2016). Even so, higher education institutions have been gradually trying to close this gap (Succi & Canovi 2019).

In the context of an ever more competitive and global labour market, graduates are increasingly faced with several challenges as they are no longer able to rely on a university degree, as they must be flexible enough to adapt to the changes in the job market (Tomlinson 2012, Clarke 2017).

Furthermore, educational institutions are encouraged to create partnerships and share multidisciplinary knowledge that respond to real-life problems, to develop the skills of future professionals (European Commission, 2012, 2017).

In this context, multidisciplinary collaborative projects are gradually becoming a compulsory part of curricula in many higher education institutions in all fields of study (Taatila et al., 2011). Multidisciplinary collaboration involves professional heterogeneity where team members are from different educational or professional fields (Morse et al., 2007; Shin & Zhou, 2007). Several authors emphasize the benefits of working in such multidisciplinary teams, such as the broader variety of knowledge resources, the diversity of perspectives, a more efficient communication, greater openness, respect and team members' effort in getting to know each other and their skills. Moreover, this diversity promotes creativity and offers a rich combination of ideas and solutions to complex problems (Harrison et al., 2002; Kearney & Gebert, 2009; Van Der Vegt & Bunderson, 2005; van Knippenberg et al., 2004; Ness & Riese, 2015). On the other hand, such groups may find communication barriers as team members with such diverse professional backgrounds may employ jargon (Ancona & Caldwell, 1992; Harrison et al., 2002).

In the context of the 21st century workplace, authors also highlight the need to prepare students for virtual knowledge sharing, where they use social media or other collaborative technologies to support information exchange (van Dam 2012). Allen et al. (2011) emphasize the fact that professionals will use a variety of tools as mobile learning continues to advance.



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3. Research Questions

As mentioned in the introduction the impact and transferability of this research, guided us to develop a set of research questions for the purpose of gaining insight into the attitudes and needs of the project target groups, i. e. students, teachers and the business sector. The following research questions have been investigated and analysed in this research report:

1. What are students' perceptions on gaining international experience during studies?
2. What are business sector's perceptions on students gaining international experience during their studies?
3. How do teachers view students' training in multidisciplinary teams in the course of their studies?
4. How do business sector professionals view students' training in multidisciplinary teams in the course of their studies?
5. How do students view being trained in interdisciplinary communication during their studies?
6. How do teachers view students' training in interdisciplinary communication in the course of their studies?

These are further refined by posing the following hypotheses:

H01: There is no statistically significant difference between the attitudes of the business sector and students about the importance of gaining international experience during studies.

H02: There is no statistically significant difference between the attitudes of the business sector and teachers about the importance of receiving training in working in multidisciplinary teams during studies.

H03: There is no statistically significant difference between the attitudes of the teachers and students about the importance of receiving training in interdisciplinary / intersectoral communication during studies.



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4. Methods

The target groups of this research were students and teachers of various study programmes, as well as companies / industrial partners in the three project partners' countries. A questionnaire was developed and administered as a Google form in the initial phase of the project. The questionnaire was distributed among the target groups in the spring semester of the academic year 2020/21. The research was anonymous, i.e. no personal data were collected. The research population included full-time and part-time students of all study programmes offered at Bjelovar University of Applied Sciences, Aristotle University of Thessaloniki and Instituto Superior de Administração e Línguas, Madeira, teaching staff of the three aforementioned higher education institutions, as well as owners and staff working at companies and institutions operating in Croatia, Greece and Portugal. The final sample comprised 308 subjects who completed the questionnaire.

The questionnaire included a total of 17 questions. The first four questions relate to the subjects' country of living, target group they belong to and their field of expertise. Questions 5-10 are formed as statements aimed at determining the subjects' attitudes about the content of the project. These questions include the Likert scale from 1 to 5:

- 1 – I completely disagree
- 2 – I mostly disagree
- 3 – I neither agree nor disagree
- 4 – I mostly agree
- 5 – I completely agree

Questions 11, 13, 15, 16 were formed as multiple choice questions whose aim was to collect valuable information from the subjects regarding the prospective content of the project activities.



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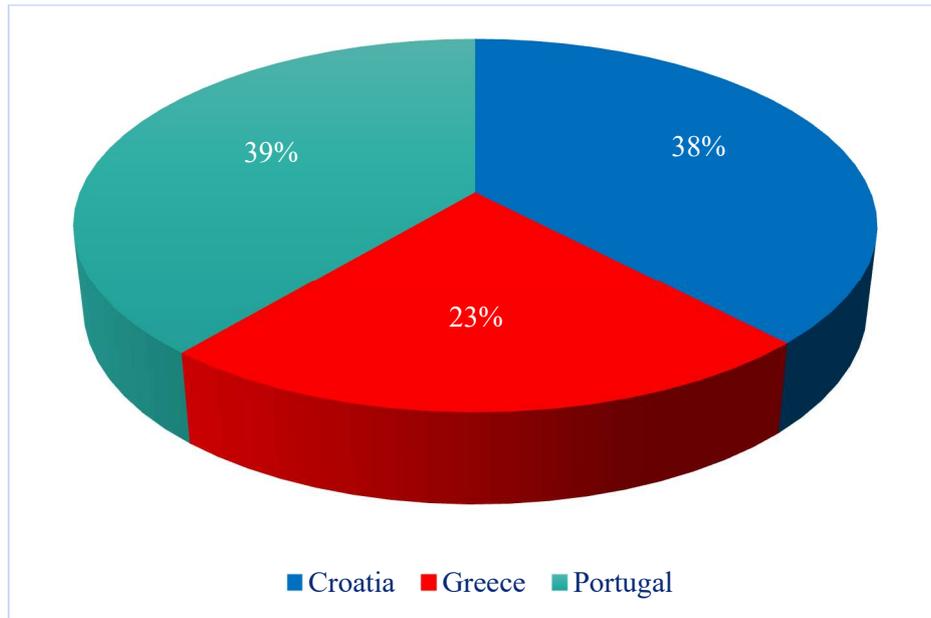
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Questions 12, 14 and 17 were formed as open-ended questions for the purpose of allowing subjects to provide additional comments to questions 11, 13 and 16, respectively, as questions 11, 13 and 16 included the answer “Other”.

Descriptive statistics was used for the purpose of describing the research results. The t-test, accompanied by Cohen’s d, was used for the purpose of answering the research questions as posed in Chapter 1 (Introduction). The full questionnaire is available as a supplement to this Research report (Supplement 1).

5. Results

The questionnaire was completed by 308 subjects from three countries: Croatia, Greece and Portugal: 120 (39 %) from Portugal, 117 (38 %) from Croatia and 71 (23 %) from Greece (Graph 1).



Graph 1. Q1: Subjects' distribution by country

Regarding the distribution according to target groups (Table 1), 50 (16.23 %) subjects are from the business sector (company owners and staff), 54 (17.53 %) are teachers at higher education institutions and 204 (66.23 %) are students.

The analysis of subjects according to the field of expertise has shown that the majority of subjects are connected to tourism and hospitality (23.70 %), followed by healthcare (22.08 %), engineering (20.78 %), agriculture (14.29 %), economy and finance (11.04 %) and other fields of expertise (8.12 %).

Table 1. Subjects by target group (Q2) and field of expertise (Q3) – in %

Target group	Field of expertise						Total
	Engineering	Healthcare	Agriculture	Tourism and hospitality	Economy and finance	Other	
Business sector	36.00	14.00	4.00	30.00	4.00	12.00	16.23
Teachers	33.33	22.22	5.56	9.26	5.56	24.07	17.53
Students	13.73	24.02	19.12	25.98	14.22	2.94	66.23
Total	20.78	22.08	14.29	23.70	11.04	8.12	100.00

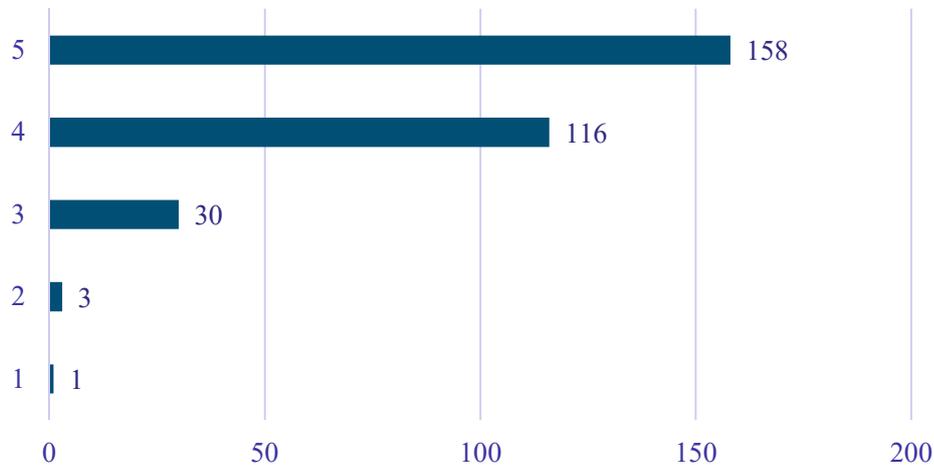
Among other fields of expertise (Q4), there was a small percentage of subjects (8.12 %) connected to the fields of human resources, management, law, environmental sciences, chemistry and humanities.

The analysis of the following questions refers to questionnaire items 5-10, which included the Likert scale. The subjects were required to mark the number that best matched their attitude on a scale from 1 to 5 (1 = I completely disagree; 5 = I completely agree).

5.1. The importance of gaining international experience during studies

The first statement was: “*It is important for students to gain international experience during their studies.*” The subjects expressed their attitudes in the following manner (Graph 2): 158 (51.30 %) completely agree, 116 (37.66 %) agree, 30 (9.74 %) neither agree nor disagree, 3 (0.97 %) disagree, 1 (0.32 %) completely disagrees.

The mean for this item amounts to 4.39. The highest average grade was given by teachers (4.56), and the lowest by students (4.34),



Graph 2. Q5: It is important for students to gain international experience during their studies.

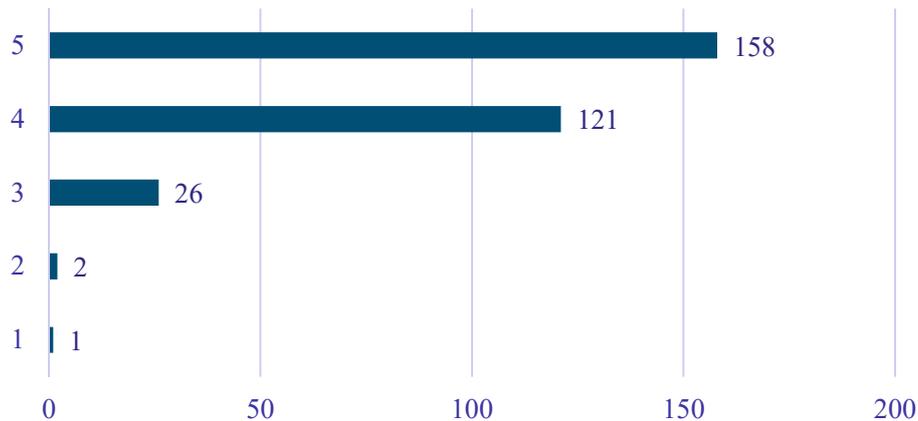
The t-test results (t-value = 0.32808, p-value = 0.371564, 0.05 significance level) have confirmed the first null hypothesis (H01). There is no statistically significant difference between the attitudes of the business sector and students about the importance of gaining international experience during studies.

5.2. The importance of receiving training in intercultural communication during studies

The following statement was: *“It is important that students receive training in intercultural communication during their studies.”* The results are shown in Graph 3.

The highest level of agreement with the statement was expressed by 158 respondents (51.30 %). A total of 121 (39.29 %) agree, 26 (8.44 %) neither agree nor disagree, 2 (0.65 %) disagree, and 1 (0.32 %) completely disagrees.

The mean for this item amounts to 4.41. The highest average grade was given by teachers (4.57), and the lowest by students (4.27).

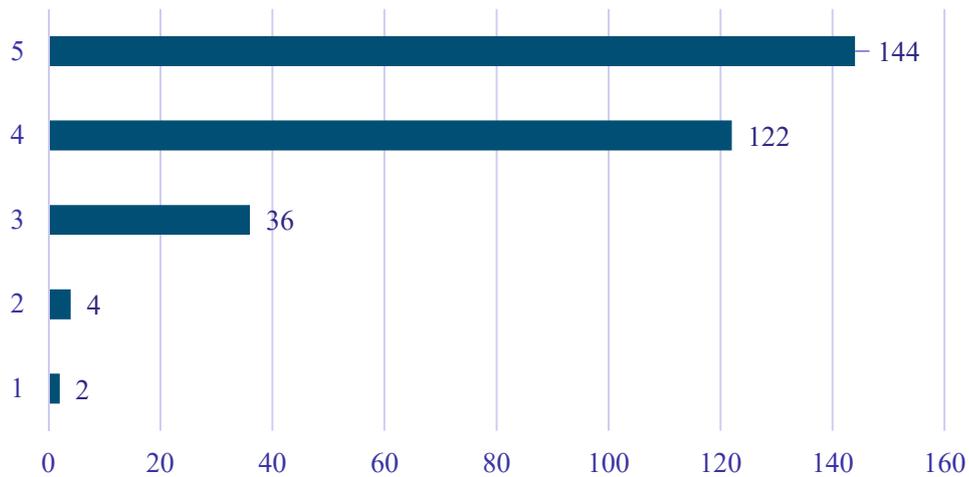


Graph 3. Q6: It is important that students receive training in intercultural communication during their studies.

5.3. The importance of receiving training in digital and videoconferencing tools during studies

The statement “*It is important that students receive training in digital and videoconferencing tools during their studies.*” (Graph 4) was rated by the subjects in the following manner: 144 (46.75 %) completely agree, 122 (39.61 %) agree, 36 (11.69 %) neither agree nor disagree, 4 (1.30 %) disagree, and two (0.65 %) completely disagree.

The mean for this item amounts to 4.31. The highest average grade was given by teachers (4.43), and the lowest by students (4.27)

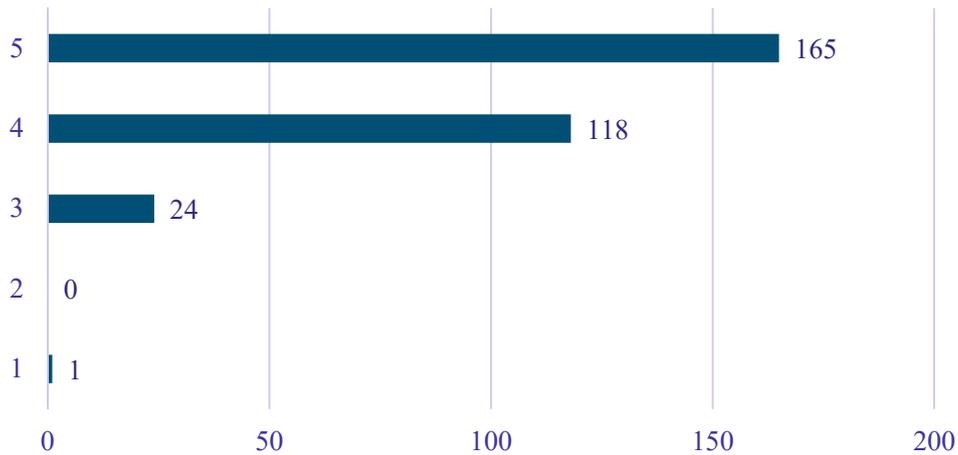


Graph 4. Q7: It is important that students receive training in digital and videoconferencing tools during their studies.

5.4. The importance of receiving training in working in multidisciplinary teams during studies

The statement “*It is important that students receive training in working in multidisciplinary teams during their studies.*” (Graph 5) was rated by the subjects in the following manner: 165 (53.57 %) completely agree, 118 (38.31 %) agree, 24 (7.79 %) and 1 (0.32 %) completely disagrees.

The mean for this item amounts to 4.45. The highest average grade was given by teachers (4.65), and the lowest by subjects from the business sector (4.34).



Graph 5. Q8: It is important that students receive training in working in multidisciplinary teams during their studies.

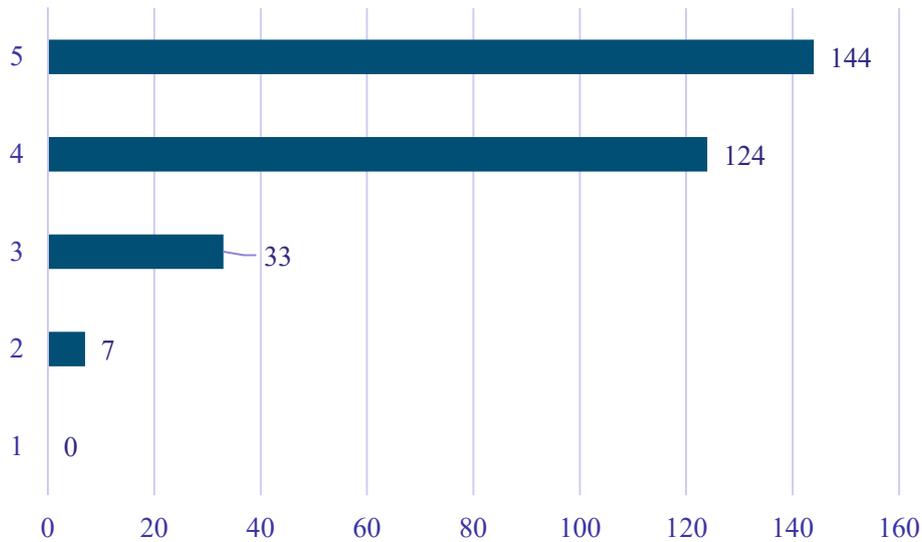
The t-test results (t-value = -2.29995, p-value = 0.011744, 0,05 significance level) have not confirmed the second null hypothesis (H02). Thus, H02 was rejected. A statistically significant difference between the attitudes of the business sector and teachers about the importance of receiving training in working in multidisciplinary teams during studies was confirmed. However, Cohen's d (d = 0.455468) points to a small effect size of the measured differences.

5.5. The importance of receiving training in interdisciplinary / intersectoral communication during studies

The following statement was: *“It is important that students receive training in interdisciplinary / intersectoral communication during their studies (namely communication with professionals from different fields).”* The results are presented in Graph 6.

The highest level of agreement with the statement was expressed by 144 subjects (46.75 %), while 124 (40.26 %) agree, 33 (10.71 %) neither agree nor disagree, 7 (2.27 %) disagree.

The mean for this item amounts to 4.31. The highest average grade was given by teachers (4.56), and the lowest by subjects from the business sector (4.22).



Graph 6. Q9: It is important that students receive training in interdisciplinary / intersectoral communication during their studies (namely communication with professionals from different fields).

The t-test results (t -value = 2.44893, p -value = 0.0075, 0.05 significance level) have not confirmed the third null hypothesis (H03). Therefore, H03 was rejected. A statistically significant difference between the attitudes of teachers and students about the importance of receiving training in interdisciplinary / intersectoral communication during studies was confirmed. However, Cohen's d ($d = 0.397903$) points to a small effect size of the measured differences.

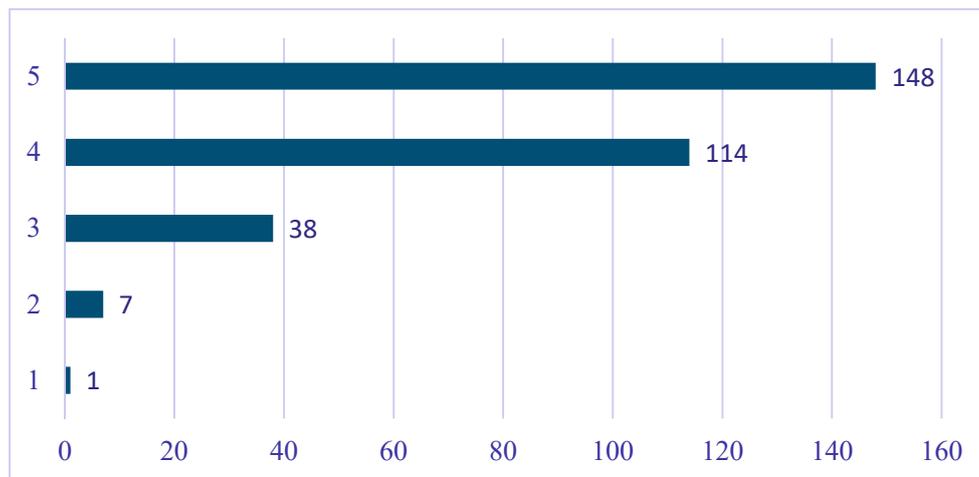
5.6. The importance of receiving training in working in international teams during studies

The statement involved in Question 10 was: “*It is important that students receive training in working in international teams during their studies.*” The results are shown in Graph 7.

The highest level of agreement with the statement was expressed by 148 subjects (48.05 %), while 114 (37.01 %) agree, 38 (12.34 %) neither agree nor disagree, 7 (2.27 %) disagree and one subject disagrees completely (0.32 %).

The mean for this item amounts to 4.30. The highest average grade was given by teachers (4.43), and the lowest by subjects from the business sector (4.16).

This is also the statement that had the lowest mean on the Likert scale.



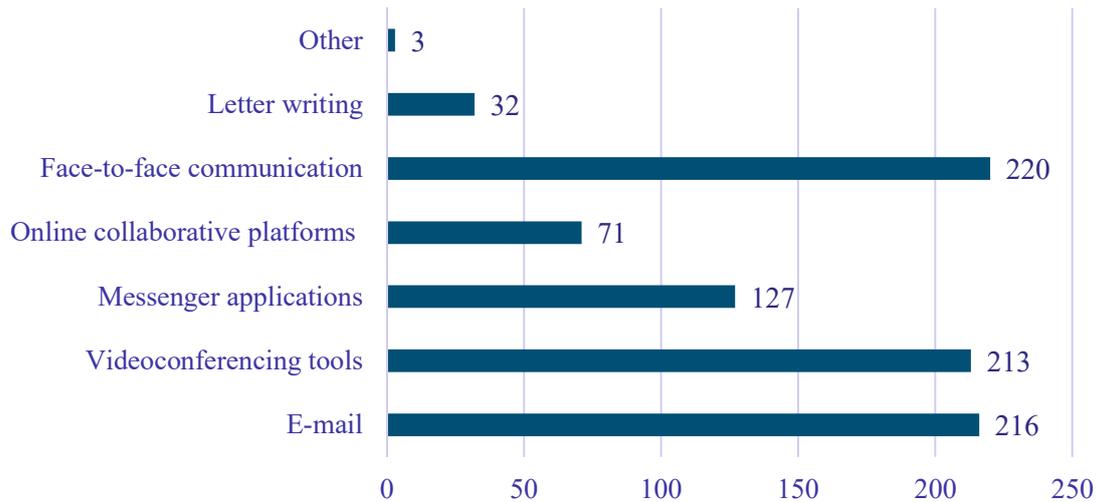
Graph 5. Q10: It is important that students receive training in working in international teams during their studies.

Questions 11, 13, 15 and 16 were formed as multiple choice questions, where subjects were offered the possibility to select all answers they found appropriate. Questions 12, 14 and 17 were formed as open-ended questions for the purpose of allowing subjects to provide additional comments to questions 11, 13 and 16, respectively, as questions 11, 13 and 16 included the answer “Other”. Question 15 was formed as a multiple choice question, where subjects were asked to select only one answer.

5.7. The most relevant communication tools / styles for the prospective work of students

Question 11 was “Which communication tools / styles are the most relevant for the prospective work of students?” It included a total of 882 responses and the results are shown in Graph 8.

The most recognised soft skill (220 answers or 24.94 %) is face-to-face communication, followed by e-mail (216 or 24.49 %), videoconferencing tools (213 or 24.15 %) and messenger applications (127 or 14.40 %). The least recognized ones are online collaborative platforms (71 or 8.05 %), letter writing (32 or 3.63 %) and other (3 or 0.34).

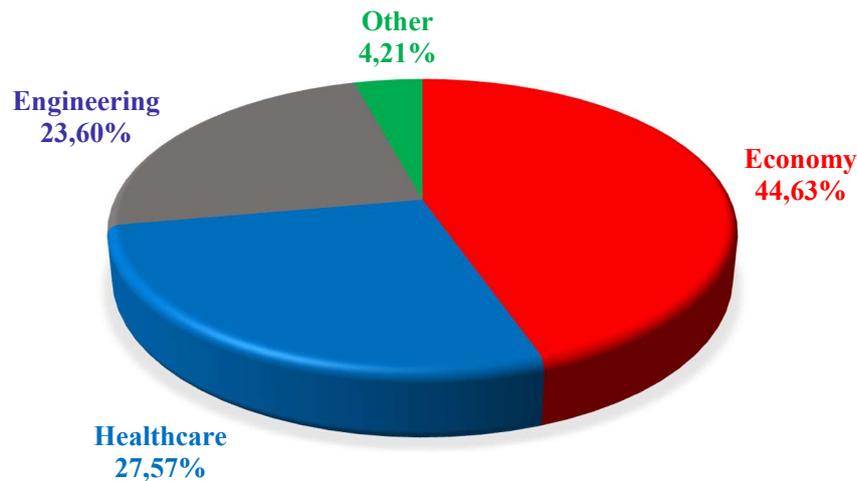


Graph 8. Q11: The most relevant communication tools / styles for the prospective work of students

Question 12 pointed to no significant additions to the results analysis, as the three answers under “Other” included the names of collaborative platforms, such as Discord.

5.8. The most frequently encountered professionals from other sectors / fields/ disciplines

The following multiple choice question (Q13) was “Which other sectors / fields/ disciplines are the ones that students will most frequently encounter professionals from, once they start working?” The results are shown in Graph 9. Out of 428 answers, 191 (44.63 %) selected economy, 118 (27.57 %) healthcare, 101 (23.60 %) engineering and 18 (4.21 %) other sectors. The analysis of question 14 has shown that other sectors include psychology, tourism, hospitality, IT, agriculture and management. However, these were opted for by a very small percentage of subjects.

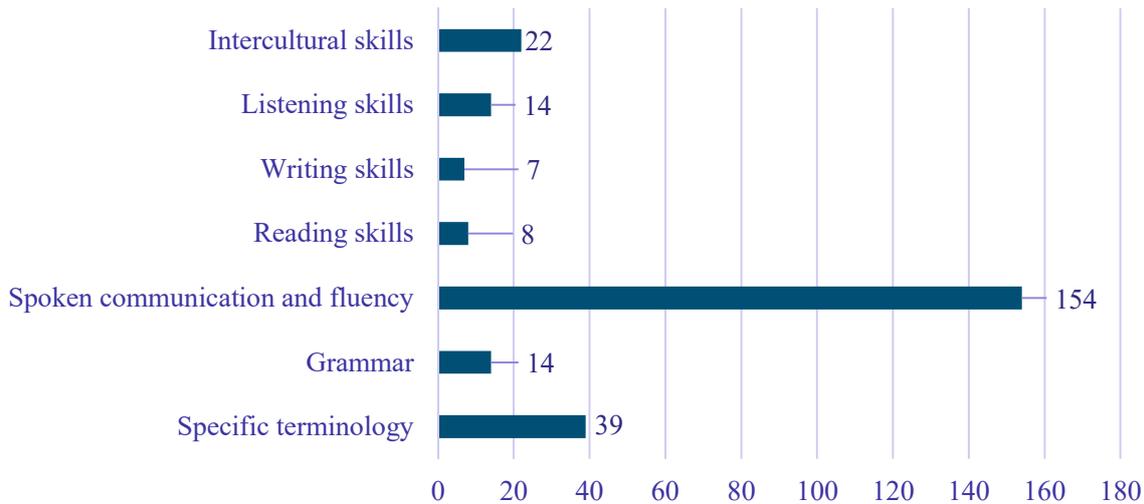


Graph 9. Q13: The most *frequently encountered professionals from other sectors / fields/ disciplines*

5.9. The most important element of learning a foreign language at college/university

Question 15 was: “Which is the most important element of learning a foreign language at college/university?” This question was formed as a multiple choice question, where subjects were asked to select only one answer. The results are shown in Graph 10.

Out of 308 answers, the majority of subjects (154 or 50.00 %) recognised spoken communication and fluency as the most important elements of foreign language learning. Specific terminology was recognised by 39 (12.66 %), and intercultural skills by 22 (7.14 %) subjects. Grammar and listening skills represent the most important language element for 14 (4.55 %) subjects. Language elements with the lowest score in this research are reading skills (8 or 2.60 %) and writing skills (7 or 2.27 %).



Graph 10. Q15: The most important element of learning a foreign language at college/university

5.10. The most important soft skills for becoming a competent employee in the subjects' field of expertise

The final multiple choice question (Q16) was: *"Which soft skills do you consider to be the most important for becoming a competent employee in your field?"* Subjects has the possibility to select all relevant answers. The results are shown in Graph 11.

The total number of selected items amounts to 1,399, out of which teamwork was selected 233 times (16.65 %), communication skills 186 times (13.30 %), problem-solving skills 175 times (12.51 %). Less than 10.00 % of the total number of answers refers to adaptability (135 or 9.65 %), presentation skills (120 or 8.58 %), time management (117 or 8.36 %), leadership (105 or 7.51 %), communicating in multidisciplinary teams (104 or 7.43 %), initiative (86 or 6.15 %), emotional awareness (82 or 5.86 %), intercultural awareness (53 or 3.79 %) and other (3 or 0.21 %). The analysis of question 17 (Other) has shown that a small percentage of subjects values stress management and entrepreneurial spirit as soft skills important for becoming a competent employee in their field of expertise.



Graph 6. Q16: The most important soft skills for becoming a competent employee in the subjects' field of expertise

6. Discussion

The results reported indicate some patterns which merit elaboration. More specifically, regarding the importance of gaining international experience during studies, the majority of the respondents (51.30%) completely agree that it is important for students to gain international experience, showing no statistically significant difference between the answers provided by students and the business sector. Similarly, 48.05% of the respondents, mostly teachers, completely agree that it is important that students receive training in working in international teams during their studies. These results are in line with the literature review, as the international activities provided by educational institutions have expanded over the last decades, giving students the opportunity to participate in such programs (Altbach & Knight, 2007).

When it comes to receiving training in intercultural communication, the highest average grade was given by teachers, whereas the lowest by students. Even so, 51.30% of the respondents highly consider training in this area important. According to Schulz (2008), the perceived importance of cultural awareness, as well as communication skills, has significantly increased over the last years.

In what concerns training in digital and videoconferencing tools during studies, the results demonstrate that almost half of the respondents (46.75%) consider this an important aspect, mainly teachers. This goes in line with the literature, as authors stress the need to prepare students for today's workplace by resorting to collaborative technologies to support information exchange (Allen et al. 2011, van Dam 2012).

Regarding the importance of receiving training in working in multidisciplinary teams during studies, more than half of the respondents highly agree that this is important, mostly teachers. Even though a statistically significant difference between the attitudes of the business sector and teachers about this was confirmed, Cohen's d ($d = 0.455468$)

points to a small effect size of the measured differences. In fact, the authors recognise the several benefits of working in multidisciplinary teams and state that collaborative projects involving students from different fields are progressively becoming compulsory in higher education.

As for intersectoral communication, nearly half of the respondents (46.75%) completely agree that it is important for students to receive training in this type of communication during studies, and once again the highest average grade was given by teachers, which shows that teachers are the group who is more aware of this need. Similarly, a statistically significant difference between the attitudes of teachers and students about this was confirmed. However, Cohen's d ($d = 0.397903$) points to a small effect size of the measured differences. When authors stress the benefits of working in intersectoral teams, they refer to the more efficient communication promoted by this context. However, the literature also mentions the communication barriers that team members may face (Ancona & Caldwell, 1992; Harrison et al., 2002).

To summarize the inferences made, students' training on intercultural and interdisciplinary communication is regarded as an important aspect of their studies. This is expanded by communication skills and teamwork as the most important skills to be trained on while studying because both enable them in becoming competent professionals/employees in the future. Such finding may be complemented by the finding of Rornaro, Heil, Peretti, 2001 that communication emerged as a problem in the multidisciplinary team of chemical engineers and computer science students who cooperated in order design a plant that would produce citric acid. As eloquently worded '...the most striking lesson learned is that the ultimate success of the team is determined by their ability to overcome communication and organizational problems, not technical ones' 2001:5. Communication is once more deemed important when students of the present research learn a foreign language. According to results, spoken communication and fluency in a foreign language are regarded by far the most significant skills followed by knowledge of discipline specific

terminology. Furthermore, face to face communication is selected as the most relevant communication tool for students when they embark on their professional life since e-mail and video conferencing come next. Although distance learning was in its prime when this research was administered and video conferencing was mostly practiced for their classes due to Covid 19 isolation measures, students have not substituted face to face communication with video conferencing.

It is also insightful to relate the patterns mentioned to the OECD 2020 which reports that:

'In coming to terms with globalisation, this generation requires new capacities. Whether in traditional or more entrepreneurial work environments, young people need to collaborate with people from different disciplines, cultures and value systems, in a way that solves complex problems and creates economic and social value (...). At work, at home and in the community, people will need a broad comprehension of how others live, in different cultures and traditions, and how others think, be they scientists, mathematicians, social scientists or artists.' 2020: 5

Therefore, intersectoral/ interdisciplinary understanding and communication along with intercultural awareness are considered as some of the cornerstones for the years to come and this is in line with the present findings. By implication, designing teaching materials that aim to train students on intercultural communication and interdisciplinary teamwork with digital tools may contribute on expanding the global competence, a competence that may be classed as operational and professional and is transferable and international.

7. Conclusion

Over the last decades, the world of work has significantly changed, becoming more and more competitive and global. Therefore, if graduates want to compete in this increasingly competitive labour market, then higher education institutions must prepare them for today's challenges, equipping students with the required tools and skills.

The results of this study report the need for training students on intercultural and intersectoral communication when working in multidisciplinary teams, as well as providing valuable international experiences to them during their studies. Moreover, the literature presents several benefits that emerge from developing these skills in students, leading to the acquisition of the so-called employability skills.

In this context, cultural awareness, interdisciplinary understanding, and communication skills are cornerstones for the current and future labour market. Bearing this in mind, designing teaching materials that aim to train students on these areas will be decisive when they undergo the recruitment process.

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