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21st Century Skills Development Among Young Graduates: A European Perspective

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Abstract

This paper presents the results of the project "21st Century Skills: Changing the Approach to Teaching in Higher Education", which was funded by the Erasmus+ programme between 2019 and 2021. The study involved seven institutions coming from different parts of Europe; mainly these were universities, but there was also one not-for-profit organisation, and one SME. Past and present-day initiatives and studies relating to the development of soft and digital skills among university students are investigated, with particular regard being paid to their perspective when they first have to face the job market. The study design is threefold, involving firstly desk research, where major documents were collected in Bulgaria, Spain, Turkey, Czech Republic, and Italy; then market research, where a sample of corporate professionals and university representatives were interviewed in order to gather additional information relating to the level of development of these skills among young graduates and employees; and lastly, a comparison between two questionnaires filled in by students before and after completing the courses established by the project. Research stages one and two are briefly introduced, with the main focus of the paper being on stage three and a discussion in which the results from various European countries are compared. The results reveal that some European countries prioritise some skills more than others. In addition, in the examined countries, it can be seen that 21st Century Skills are still not widely developed by young graduates and there is a mismatch between the value attributed to the improvement of competencies and the actual content of training provided by European universities. In summary, employers and academics have provided key information relating to the most needed skills in the market today. In addition, they have testified that attention should be paid to university projects, such as internship programmes and advanced English courses in order to better prepare young people for the marketplace. Furthermore, students should be more involved in activities aimed at improving

their level of 21st Century Skills, with courses specifically designed to address this need and make them more aware of their current skill level and the abilities they are expected to have. Currently, these courses are rarely organised by Higher Education institutions and even when they are, they are not always effective.

Keywords: 21st century skills, soft skills, higher education, young graduates, employees, employers

1. Introduction

The first part of this paper concerns the desk research of the 21st Century Skills: Changing Approach to Teaching in Higher Education (CATCH21) project funded by the Erasmus+ programme. The project partners undertook an in-depth analysis in their respective countries, namely Bulgaria, Spain, Turkey, Czech Republic, and Italy, pertaining to the literature available on 21st Century Skills development.

A prior note should be made regarding the terms 'skill' and 'competence', terms that are related to each other, but that refer to different concepts. Skill refers to the ability to solve problems, to perform tasks, and to overcome complex functions by using context-based sufficient and quality knowledge (Rychen & Salganik, 2003). These can be at the cognitive level, such as logical and creative thinking, or the technical level, such as manual dexterity and the use of tools (Ananiadou & Claro, 2009). Competence, however, is an intricate component of knowledge, skills, attitudes, and values. The field of competence is the observation of relevant knowledge, skills, attitudes, and values as a whole in a particular area. These four fields can be related to educational, business, personal, or professional fields. Competence is not limited to cognitive elements and it does not only cover the use of theory and concepts as well as subject area knowledge, but also technical skills, personal qualities, and ethical values (Ananiadou & Claro, 2009).

In general, 21st Century Skills refer to the skill sets that individuals living in the Information Age need to have and continuously develop to be competent and qualified (Cohen, et al., 2017; Hamarat, 2019). Over the years even though different conceptual frameworks for understanding 21st Century Skills have been used, there are some skills that are a constant part of this definition and they are: creativity, critical thinking, problem solving, communication, collaboration, information and process management, effective use of technology, career and life skills, and cultural awareness (Beers, 2011, cited in Cansoy, 2018). An OECD (2019) report and other studies (Feraco et al., 2022; Ferreira & Robertson, 2022; Ramos et al., 2023) stress how socio-emotional and cognitive skills like critical thinking and empathy, for example, will become key skills for the future while more technical skills will evolve.

General findings in relation to studies on 21st Century skills will be discussed in the literature review section, with a particular focus on observations relevant to each of the partner countries in the project.

In order to identify the main soft skills of the 21st Century, the project partners undertook a study whose main objective was to investigate the twin perspectives of both recent graduates and professionals on this issue and to understand their role in the labour market. More specifically, the main aim was to answer the following research question:

'What competencies and skills do business representatives seek for hiring university graduates, and why?'

Finally, data collected in the pre- and post-questionnaire on the usefulness of training soft skills will be discussed.

2. Review of Literature

In this section we will briefly summarise the results of the desk research for each partner country in order to contextualise the situation in relation to 21st Century skills in Europe.

In Bulgaria, the state educational standards for student achievement by general school subjects were initially developed in 2000 as outcome-based learning standards, describing the knowledge, skills, and attitudes that students should achieve at the end of each educational stage and level. Following the development of the European Key Competences for Lifelong Learning in 2006, the Ministry of Education and Science (MES) of the Republic of Bulgaria undertook systemic efforts to adjust and coordinate the state educational standards for student achievement along these lines. The effort to redesign the standards was successfully finished in 2015, encompassing the standards for 20 school subjects in total for all general education stages and levels, after grades 4, 8, and 12. The standards were put in force with "Ordinance № 5 from 30.11.2015 for the general education study" (MES, 2015). The unified structure of the standards includes (1) the areas of subject-specific competences, (2) the expected learning outcomes for each subject-specific competence, and (3) linking the learning outcomes to certain European Key Competences for Lifelong Learning (the 8 European Key Competences + 1). The additional 9th key competence, added to the 8 European Key Competences in the standards is named 'Skills for supporting sustainable development and healthy way of life and sport'.

Moving now on to the second country, Spain, it is clear that education there has had a turbulent history which still strongly influences the norms and structure of the system. In the new democratic society, tertiary education had to face new challenges. The first one was an increasing number of university students, with the universalisation of education. In 1972-1973, there were 404,000 first-year students, while in 1999-2000 there were 1,583,000, which resulted in large classes and a general overcrowding of the Spanish higher education system (OECD, 1998). The second important factor was the new Spanish constitution, which approved 17 autonomous communities independence from the central government in Madrid. This meant the beginning of a decentralisation process that took place in all the ministries including the Ministry of Education (MEC). From then on, every autonomous community would manage educational resources, regional departments of education, curricula and its implementation, as well as budgets separately. Once all of the competencies were transferred to the autonomous communities, the number of universities tripled in Spain. However, this was not until the 1990s, when private universities were created (Peach, 2001). Some of the actions to support the educational innovation plan were plans for internationalising public and private universities. The Programa Campus de Excelencia Internacional aims to promote the internationalisation and quality of Spanish higher education institutions as well as help Spanish students to acquire global competences (Horta, 2009; Silla, 2010). The creation of a new Ministry of Innovation is helping to promote new strategies. In the case of Spain, nowadays there is a lack of research relating to 21st Century Skills. Almerich et al. (2018) mention that very little research has been developed in Spain. However, there are some studies about employment and TICs in education. The current university law states that there should be a report to apply a verification of official

degree certificates (Real Decreto 1393/2007, October 29th). There are indeed international forces and trends pushing for a big change in education in general, including higher education. European higher education institutions have started with the Bologna Process, one of the most important reforms in order to internationalise and educate global citizens, who are able to compete in an interconnected global market (Sierra, 2013). However, from a 21st Century Skills implementation perspective it seems clear that Spain lacks development.

When the literature of Turkey is examined, it becomes obvious that there are not enough studies that can produce reliable scientific judgments specifically about 21st Century Skills, university students, and the teaching and learning processes pertaining to skills acquisition. Among this material, Celebi and Sevinç (2019) studied teachers' perceptions of competence in 21st Century Skills, and 130 teachers from different branches of the secondary school system participated in the study. According to the results, it was seen that the teachers who participated in the research had high levels of competence in terms of classroom management and self-management, cooperation, communication, using instructional technologies, employing pedagogical information, and conducting all teaching processes flexibly. Meanwhile, Gürültü, et al. (2018) examined whether or not teachers' use of 21st Century Skills differed according to various demographic variables. A total of 364 teachers (208 female and 156 male) from different cities and different branches participated in the study. The results of the analysis revealed that teachers' perception of their use of 21st century teaching skills was high. According to the results, primary teachers received the highest score in the supportive skills and the lowest score in the flexible teaching skills dimensions. It was also found that teachers working in primary school had better use of 21st century teaching skills in the scale and the managerial, techno-pedagogical, flexible teaching and productive skills sub-dimensions. However, most of the studies conducted in Turkey have not gone beyond determining the situation and describing the differences between the groups studied. Similarly, most of the existing documents are related to education and not the workplace. Considering the above knowledge and the research studies made in Turkey as a whole, it can be said that there is a big gap as regards who needs to be taught, by whom, and how to teach 21st Century Skills. All of these can be read as signs that it is necessary to establish a holistic research ecosystem by bringing stakeholders together and starting from a needs analysis.

Several comprehensive books and monographs have been published with reference to the Czech Republic, on the topic of the teaching profession in changing educational requirements. Spilková & Tomková (2010) wrote the book titled 'Teacher quality and professional standard: research intent: the teaching profession in changing educational needs teacher education'. The book covers topics like the teaching profession, pedagogical skills, and educational research in the 21st century in the Czech Republic (Spilková & Tomková, 2010). The book was preceded by extensive empirical research and an analysis of key reform trends in primary education in the first decade of the 21st century. The results showed how the conception of school, the goals of individual educational areas, and the everyday life of the school have changed. Attention is also paid to alternative and innovative approaches to education and the evaluation of younger pupils, issues with integrating students with disabilities, etc. (Spilková & Vašutová, 2008; Spilková, 2005).

Furthermore, the publication of Navrátil and Mattioli presents a comprehensive, systemic approach to improving the quality of education in the Czech Republic, which corresponds to 21st century requirements for individual competitiveness under the current conditions of the

global information environment. The content of the publication should become a theoretical and practical guide to all who are or will be involved in solving the current social problems related to the improvement of education (Navrátil & Mattioli, 2013). According to the developments that have occurred in the last two decades, the Czech education system has undergone a number of changes from elementary to high schools and universities, yet a lot of experts and the public as well are calling for fundamental reform (on-line press - denik.cz, 2019). According to the recent findings of the Czech School Inspectorate presented to journalists on 12 December 2018, pupils' achievements in schools do not match what they should know based on the so-called Framework Educational Programmes, which define the content of the curriculum. The curriculum is too extensive and puts a great deal of pressure on teachers and children. In the lessons, there is no time for practising and having fun while teaching. Therefore, the revisions of the educational programmes are currently being prepared by the Ministry of Education, with a focus on changing the content of education (lidovky.cz, 2018).

In the case of Italy, both with regard to the topic of 21st Century Skills and soft skills in general, the country has introduced a series of challenging reforms to improve the performance and responsiveness of the labour market. They also aim to improve the capacity of the education system to develop and identify students' skills, while also encouraging individuals to develop skills outside of school. Recent reforms also promote innovation and digitalisation and are part of a long-term strategic vision that also includes the development and improvement of skills policies that respond to the unique national and regional conditions of the country. In the case of Italy, various stakeholders such as universities are interested in the topic of soft skills development as they play an important role in this sector and sometimes offer targeted training (Cinque, 2016). Hence, several studies show how Italy still lags behind in terms of helping its future workforce to develop 21st Century Skills although the need is undeniable, both at the secondary school and university level. However, some interesting initiatives like those promoted by MIUR addressing the Digital Transformation 4.0 in Schools and by some other more local universities, demonstrate that some initiatives are taking place in order to address this important need. However, it is important to bear in mind that Italian workers are viewed as having low average levels of cognitive skills and are less inclined to use certain cognitive skills that are significant drivers of workers' and companies' performance (OECD, 2018); this constitutes a challenge that our study may attempt to address.

In phase 2 of the study, partners were asked to carry out market research addressed to higher education representatives, including academics and corporate professionals, business leaders and HR managers. Participants had to sign an Informed Consent Form in order to agree to the interview. In the next section, the approach taken towards this stage of the study will be summarised for each country and comparisons will be made. According to the OECD (Anaiadou & Claro, 2009) the skills that will be analysed in this research are defined as follow:

- **Critical Thinking** - analysing complex problems, researching questions that do not have a clear, direct answer, assessing different points of view or sources of information, and drawing proper conclusions based on evidence and reasoning;

- **Collaboration** – the ability to work cooperatively to solve problems or answer questions, the ability to work in groups efficiently and with mutual respect to achieve a common goal, and share the responsibility of finishing the task;

- **Communication** – the skill to organise thoughts, information, and results, and share them efficiently and effectively by different means, as well as orally and in writing;

- **Creativity and Innovation** - refers to people being able to generate and redefine solutions to complex problems or tasks based on synthesis and analysis, and by combining and/or presenting what they have learned in new original forms;

- **Self-Direction** - people being able to take responsibility for their own learning and performance, identifying matters to develop and processes of their own learning, and who are able to review their own work and answer the feedback they receive;

- **Making Global and Local Connections** - the first one refers to people who are able to understand global geopolitical matters, including other countries' geography, culture, language, history, and literature. Local connections refer to people who are able to apply what they learn to local contexts and community matters. Jointly, this skill serves to determine how global matters affect realities in local contexts;

- **Using Technology as a Tool for Learning** - knowing how to manage learning and produce products/results using information and the right communication technologies.

The next section will discuss the materials and methods used for undertaking the market research as phase 2 of the study.

3. Materials and Methods

This section of the paper describes the results of the market research relating to soft skills undertaken in each partner country involving business and university representatives. Several semi-structured interviews have been collected in each country with the aim and purpose of answering the research question, namely: 'What competencies and skills do business representatives seek for hiring university graduates, and why?'

Interviewees were randomly selected inside a sample of companies and academics surrounding the area of each partner institution or who were part of the network of each. Interviewees were asked to express their opinions on seven 21st Century Skills that were identified as critical during the project, and which were also based on the 21st Century Skills and Competences for New Millennium Learners in the OECD Countries paper (Anaiadou & Claro, 2009) as described earlier.

Semi-structured interview protocols were built and agreed on among the partner institutions, since nearly all of them were university academics with experience in research. Interview protocols were set up in order to answer the research question presented above and were piloted among colleagues and a small number of entrepreneurs.

The research took place with the participants' consent which was previously sought and obtained through their signature on a consent form. Hence, participants were informed from the outset about the main aim and purpose of the study and on how their identities would be kept anonymous, while their information would be kept confidential, and used only for the described purpose. They were also informed that they could withdraw from the study at any time without any prior notification.

Results and Discussions

Below is a summary of the interview findings of stage 2 of the study reported per partner country. The interview data have been analysed using a thematic analysis approach (Clarke et al., 2015), the results of which have been published elsewhere (Crosta & Banda, 2022). In this paper, the focus will mainly be on the order of importance the participants gave to the seven skills identified from the OECD report. Only the first three in terms of importance are reported here in the study. The findings reported here in Table 1 provide an answer to the research question.

The Sofia University team conducted an Internet survey and analysis of two of the leading universities in Bulgaria, namely Sofia University 'St. Kliment Ohridski' and the University of National and World Economy (UNWE), investigating the extent to which the 21st Century Key Skills that form the focus of the project are present in their university curricula and courses. In the case of Bulgaria, nine participants took part in the study, seven of whom are CEOs, directors, and managers or managers in Human Resources departments, and two are university lecturers. According to the respondents, almost all of the presented 21st Century Skills were considered equally important when applying for a specific job role or position. However, they reported that most of the courses for skills development are not considered as important in the curriculum. Academic and corporate representatives recommended a transformation based on two levels, with the first level involving practical courses organised by hosting professionals from the business world, and the second level containing group projects and case studies. From this perspective, universities could help students to improve their level of skills with specific training aimed at better preparing them for future workplaces.

In Spain, the interviews were carried out in January 2020 when 19 invitations were sent by email to different experts and companies, explaining the project and inviting them to participate in face-to-face interviews or in online questionnaires. Following the main feedback obtained during this process, it was evident that despite the importance attributed to the development of 21st Century Skills by both academicians and professionals, the study showed that skills are normally assessed in secondary education, while higher education tends to assess students based on content rather than competences, showing that in spite of the value attributed to skills-based learning, this is not reflected in daily practice. A special note was made in relation to the concept of Communication, a key skill that in today's globalised world should be integrated with the knowledge of foreign languages, with English plus others, to become market-ready.

In Turkey, the working group consisted of 11 participants, six of whom were managers in Human Resources departments while the remaining were academics. The content analysis of the interviews shows that the qualifications of graduates were gathered around competences as the main theme, which included the sub-themes knowledge, skills, personal traits, and vocational identity. Although knowledge can be different from one profession to another, all academics and HR managers agreed that all graduates needed to have basic content area knowledge, and knowledge related to basic computer literacy like Microsoft Word, Excel, and Access, and basic subject area computer literacy like AutoCAD and SOLIDWORKS for engineering fields. A critical point made was that internships should start as early as possible, because they help students in building their own professional identity and finding motivation. In fact, according to some respondents, the student participation in internship programmes make

it easier for students to determine their career goals, and to understand the theory-practice relationship.

At the Czech University of Life Sciences Prague, two staff from the Institute of Education and Communication (one academic and one technical staff) selected and contacted 6 HR managers from different Czech or international companies in Prague and set up appointments with them for interviews. According to the results, knowledge was considered by many professionals to be a prerequisite for work success. However, more than a field of education or a university degree in an expected major, managers considered the knowledge associated with a particular position that cannot be obtained by a classical institutional education as most important. The most positive finding of the research was that the HR managers perceive candidates as quite well prepared in terms of their general knowledge and some skills. However, Czech HR managers feel the biggest lack is in self-direction skills to better handle freedom, autonomy, and responsibility. Students, according to managers, should take longer internships in order to acquire the required skills and understand the dynamics that may occur in a company. Thus, the common idea that emerged was that students would benefit from the longer training process and may find a favourable context for growing their soft skills.

In relation to Italian participants, the sample was composed of 5 HR Managers or CEOs of specific companies placed in the North of Italy and by one researcher/academic from Milan. When considering the interview of the researcher/academician three key themes were identified, namely: the introduction of micro-credentials in the university context, the growing importance of ICT skills, and the increasing connection between soft skills and digital skills. The researcher explained how the universities can create single training courses through micro-credentials that could be recognised afterwards altogether as a formal pathway for students, although this has not yet been fully implemented in the Italian university context.

In light of the above, each partner country developed a rating of 21st Century Skills based on their importance for recruitment, which may be summarised as follows in Table 1.

TABLE 1. MOST AND LEAST IMPORTANT SKILLS BASED ON INTERVIEWS

Country	Most important skills		Least important skill
Bulgaria	Collaboration	Communication	Making Global and Local Connections
Spain	Communication	Collaboration	Making Global and Local Connections
Turkey	Communication	Creativity and Innovation	Making Global and Local Connections
Czech Republic	Collaboration	Communication	Making Global and Local Connections
Italy	Critical Thinking	Collaboration	Making Global and Local Connections

Source: own compilation, based on personal interviews, 2020

Table 1 shows that, despite the provenance of respondents, the most important identified skills did not differ based on country, on the contrary there was a common agreement connected to the relevance attributed to Communication and Collaboration, which were marked by the highest scores. Conversely, all the countries identified Making Global and Local Connections as the least important skill, meaning that the majority of interviewees attributed a very low level to this skill. On the other side, it should be noted that countries such as Italy considered 'Critical Thinking' as the most important skills for young workers which was not cited as the most import by the other partner countries. The same was for the 'Creativity' skill reported by Turkey.

A third research step comprises of findings collected from the pre- and post-test questionnaire submitted to undergraduate students before and after the course delivered to them on 21st Century Skills through the project partners. Each University project partner, in their own country except Italy, delivered a course to students in a full online modality through Moodle® LMS, were students attended lectures for 7 Modules, each on one of the soft skills described above. The results of this last research stage are discussed in the following sections.
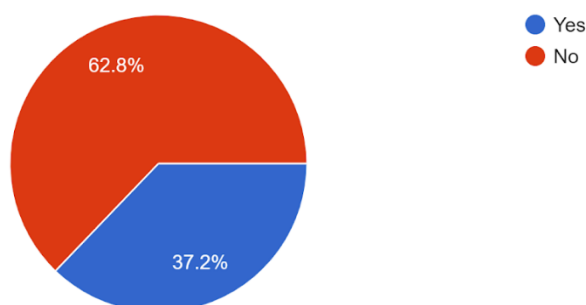
3.1. The pre-test questionnaire findings

The pre-test questionnaire has been submitted to 156 higher education students before attending the project course, in four main countries, namely: Turkey, Spain, Bulgaria, and the Czech Republic. The pre-test module was made available to be filled in by students between April and May 2021 and it was delivered in an anonymous format. The same questionnaire was submitted both before and after the participation in the training. The questionnaire was constructed with the main aim in mind of collecting data in order to understand the perception and effectiveness of the training. The tool was piloted with a few students and teachers who did not participate to the training.

The first question of the list asked students if they had ever been assessed using competences as a framework and, although nearly 63 per cent of them stated that they were not, the remaining 37 per cent declared that they were. Hence, it is clear from Chart 1 that evaluation frameworks based on competences are not yet prevalent in the participants' countries, although some of them may have started to apply this type of framework in Higher Education.

CHART 1. USE OF COMPETENCIES AS A FRAMEWORK

Have you ever been evaluated using competences as a framework?
156 responses

● Yes
● No

62.8%

37.2%

Source: pre-test questionnaire results, based on answers collected via online forms, 2021

Following the results, Chart 2 shows how participants from Turkey, the Czech Republic and Bulgaria, gave special value and importance to skills such as critical thinking, creativity & innovation, and collaboration & communication as key for the OECD and less to consciousness and cultural issues, to learn to live together, social and civic competencies, and to intercultural competencies.

CHART 2. ALIGNMENT OR MISALIGNMENT WITH OECD SKILLS
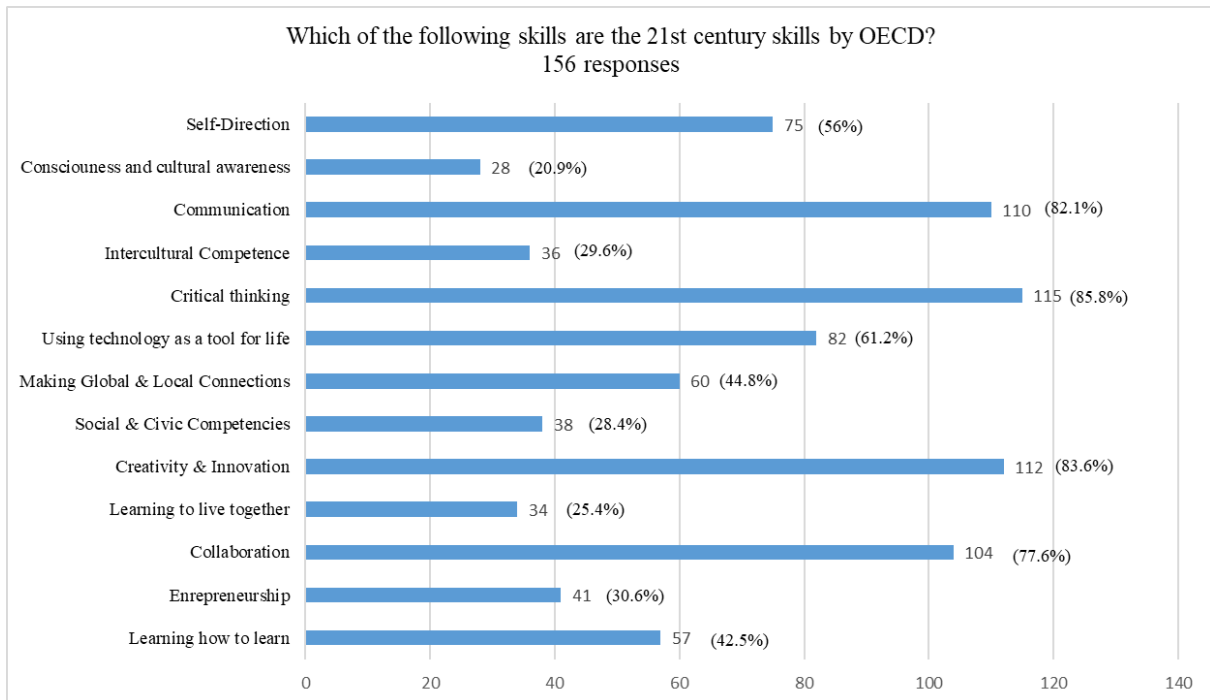
Source: pre-test questionnaire results, based on answers collected via online forms, 2021

The final section of the report contained the results of a self-assessment made by respondents on 7 key 21st Century Skills, namely collaboration, self-direction, communication, critical thinking, creativity & innovation, using technology as a tool for learning, and making global and local connections. They had to specify their level for each one of the key skills ranging from 0 (no knowledge) to 10 (plenty of knowledge). Taking the above into account, **communication** and **critical thinking** reported similar results.

With reference to collaboration, the most frequent results were 7 and 8 and this underlines a slightly lower level of importance, maybe due to the difficulties that can emerge when working or studying with peers, or maybe due again to cultural issues and differences. These optimistic evaluations slightly decrease when dealing with self-direction and making global and local connections.

A surprising percentage of respondents seemed somewhat insecure about their knowledge of new technologies and their usage for learning. This is unexpected when considering the age of respondents, typically university students who should be more familiar with digital tools.

CHART 3. SKILLS SELF-ASSESSMENT ACCORDING TO COUNTRY
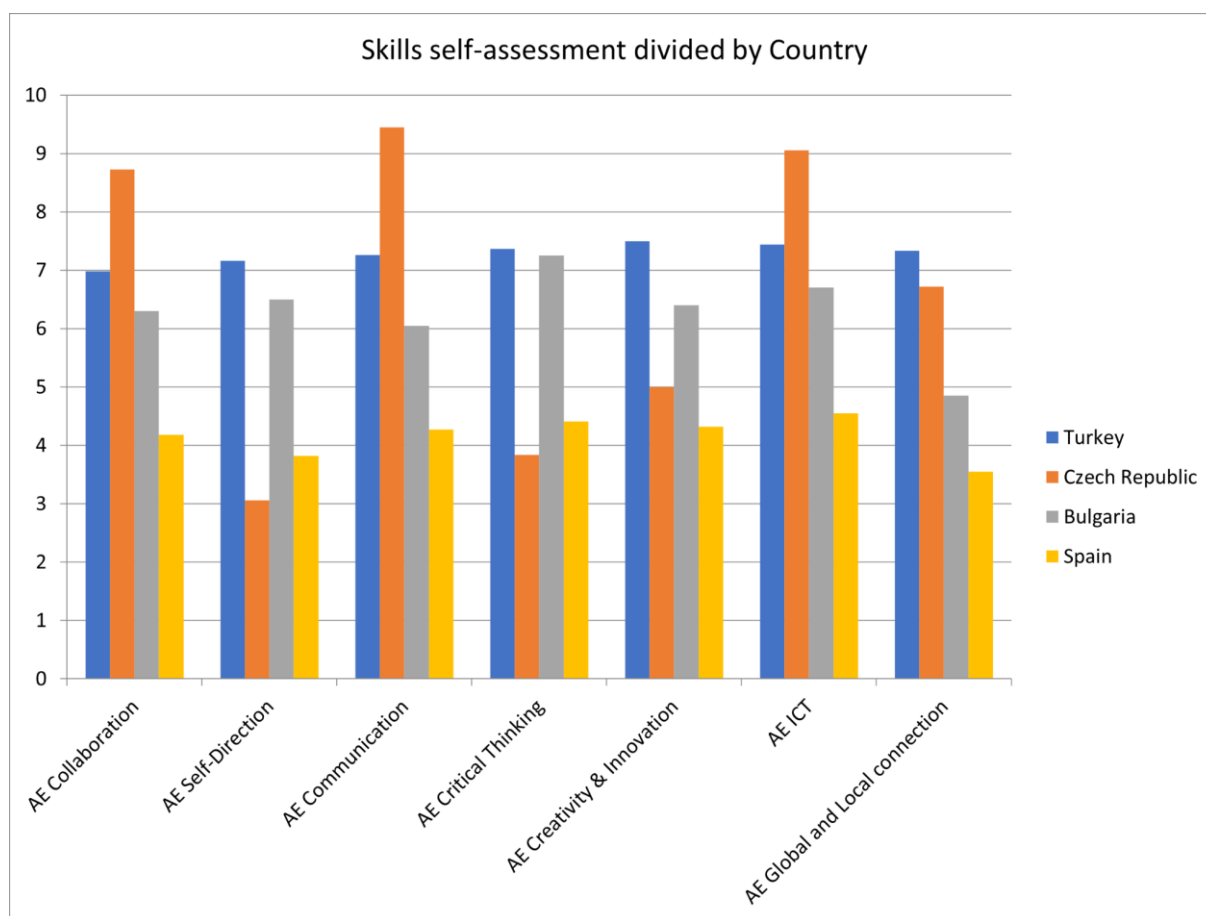
Source: own compilation, based on answers collected via online forms, 2021

In Chart 3, the skills self-assessment is presented according to the country of provenance. It is notable that while for the overall skills, participants from Turkey and Bulgaria self-assessed themselves in a similar way, participants from the Czech Republic and Spain self-assessed themselves in very different ways than participants from the other two countries. We wonder at this stage if this depends on the type of skills training already offered in each different country or if it depends on the type of apprenticeship offered in each country to fresh graduates.

## 4.2. The post-test questionnaire findings

The post-test questionnaire was designed by the whole project partnership and collected 116 answers from higher education students after attending the project pilot course. It is important to underline that not all of the actual attendees completed the form, and this lack of data may have had some effects on the current analysis.

One section of the questionnaire focused on the changes of perspective about conceptions on skills learning before and after the training. When participants were asked if, in their opinion, 21st Century Skills refer to the skill sets that individuals living in the Information Age need to have and continuously develop to be competent and qualified, the majority of respondents, namely 97.4 per cent, were confident that these skills are part of the learning journey of individuals for personal and professional improvement, with an increase of five percentage points compared to the results collected in the pre-test questionnaire and a consequently growing importance given to the learning journey and continuous training.

Students were also asked to express their opinion on the boundaries of 21st Century Skills and where they should be taught and learned, whether inside an educational institution or not: 42.2 per cent of participants agreed that these skills are normally learned outside an educational institution. Compared to the pre-test results, the level of agreement increased by four percentage points after completing the course project, with more participants supporting a training based on 21st Century Skills outside educational institutions.

Finally, in the section on students' self-evaluation, we identified that the skills connected to communication and self-direction reported similar results, with a peak on the top score corresponding to plenty of knowledge.

CHART 4. COLLABORATION SELF-EVALUATION
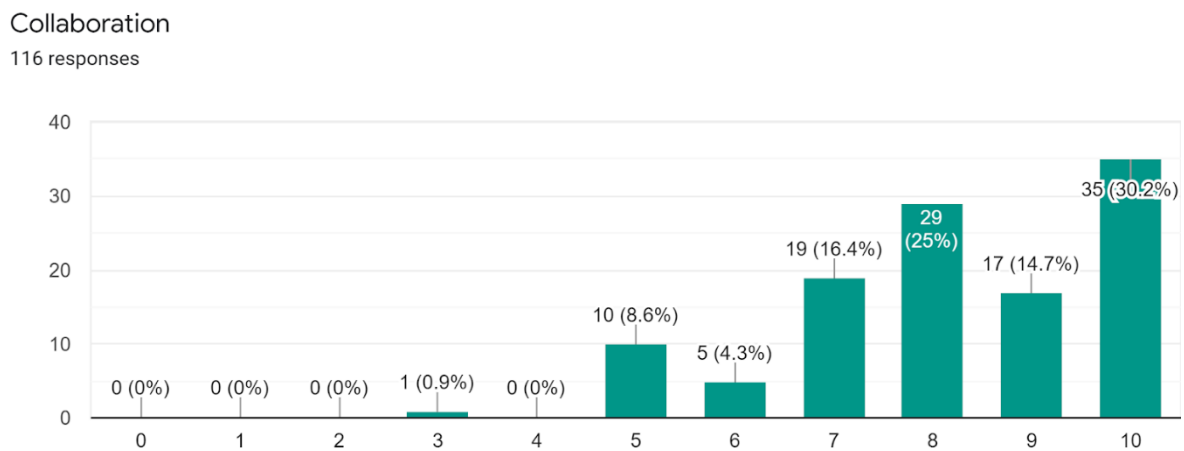
Source: pre-test questionnaire results, based on answers collected via online forms, 2021

With reference to collaboration, as shown in Chart 4, the most frequent results were 8 and 10, which slightly differ from the pre-test, where the main answers were distributed between 7 and 8. These optimistic evaluations increased even more when dealing with critical thinking and creativity & innovation: the two bar charts report less fluctuations, with a gradual growth as values increase. As a consequence, 9 and 10 together respectively form 59 and 42 per cent of the results.

4. The Research Gap

In Table 2, the results of the self-evaluation of the pre- and post-tests are presented. Focusing on the first part of the figure related to the pre-test evaluations, it is difficult to identify a common frequent value among the assessed skills, as the most frequent ones range from 5 to 10. At the same time, the least frequent values are very low, without any skills overcoming the barrier of a value of 2.

TABLE 1. SELF-EVALUATION COMPARISON BETWEEN THE PRE- AND POST-TEST

Skill	Pre-test		Post-test	
	Most frequent value	Least frequent value	Most frequent value	Least frequent value
Collaboration	7 and 8 (16.7%)	1 and 2 (1.3%)	10 (30.2%)	3 (0.9%)
Self-direction	5 (16.7%)	0 (0.6%)	10 (31.9%)	4 (1.7%)
Communication	10 (23.1%)	0, 1 and 2 (0.6%)	10 (32.8%)	3 and 4 (0.9%)
Critical thinking	10 (16.7%)	0 and 1 (0.6%)	9 (32.8%)	4 (1.7%)
Creativity & Innovation	5 (14.7%)	2 (3.2%)	10 (24.1%)	3 (0.9%)
Using technology as a tool for learning	9 (17.3%)	2 (1.3%)	10 (29.3%)	2 (0.9%)
Making global and local connections	5 (14.1%)	1 (1.3%)	7 (22.4%)	2 (0.9%)

Source: own compilation, based on answer collected via online form, 2021

Next to these results, the post-test results are presented. In this case, the common frequent value for the majority of the skills assessed is equal to 10. By analysing the least frequent values, we can notice that they are concentrated around 3 and 4, with an increase compared to the values of the previous module. The growth in both most and least frequent values linked to the questionnaires submitted after the courses may represent a general improvement in the perception of students related to their abilities in transversal skills acquired after the training. Hence, the results of the study show how more training and more activities are needed to support young workers in order to develop their soft and employability skills in the market. Their current lack increase the negative self-perception young people have around these skills and about their meaning and value for the marketplace. However, it is important to note that studies such as Almeida and Morais (2023) reports that developing soft skills among higher engineering courses and integrating them into the traditional curriculum can be challenging and require good practices and experiences.

5. Conclusion

This study was made in an attempt to fill a gap relating to the perception of the importance of soft skills in different European countries as partners of the project.

With regard to the desk research section in the research report, it can be said that 21st Century Skills have started to be included in the curriculum of the countries in recent years and that the national education ministries and universities have taken initiatives in this respect. When the current practices and legal regulations regarding 21st Century Skills in the education systems

of Bulgaria, the Czech Republic, Italy, Spain, and Turkey are considered as a whole, it is evident that these skills are considered important and that the ministries of national education and universities have positive policies regarding the teaching of soft skills. However, it is possible to say that the education systems are lacking in terms of teaching these skills and there is still a long way to go in this regard. It is clear that future studies should focus more on how to teach skills. The CATCH21 project contributes to this field with the online learning platform and teaching materials it has developed in this sense.

When the results of market research conducted in five countries are compared, HR managers and academics seem to agree regarding the skills that students should have. These skills stand out as the most important skills such as communication, cooperation, and critical thinking. This order of importance differs insignificantly from country to country. While critical thinking ranks first in Italy, cooperation and communication occupy first place in other countries. This finding is also consistent with the findings (OECD, 2008; Saleh, 2019) in the current literature. Conversely, all the countries identified Making Global and Local Connections as the least important skill, even though the mean rating of this skill was 7 out of 10 which can also be considered an important skill. The development of skills which interviewees rated as highly important and highly in demand still requires appropriate and effective training materials. These need to be developed for each skill and for each different sector specifically, not generally. In a fast-changing world of work, skills requirements are also evolving and all training materials need continuously to be updated.

During the CATCH21 project a course programme was developed for students according to the research results and courses were implemented in five countries. Pre- and post-tests were applied to the participants of the courses in all the countries to measure the effectiveness and usefulness of the course. The pre- and post-test results show that the students are more confident and capable in terms of 21st Century Skills. In other words, it can be said that the course was successful and effective in improving the 21st Century Skills of students.

Finally, the CATCH21 project developed teaching materials, face-to-face courses and online courses for HEI teachers and students which can be considered a good starting point. Future studies need to focus on the values and attitudes concerning 21st Century Skills as well, besides the skills themselves, to prepare the future workforce. The HEIs also need to develop in parallel with the continuously changing demand of the labour market.

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