Employability and entrepreneurial skills of graduates

Report of Needs Analysis

Project #EuropeHome

Intellectual Output 1

Needs analysis survey/report

University of Aveiro

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List of Abbreviations

A – Academics

A3ESs - Portuguese Higher Education Accreditation Agency

E – Employers

EC – European Commission

ESN - Erasmus Student Network

EU – European Union

FS – Former Students

HEI – High Education Institution

NGO – Non Governmental Organisation

OECD – Organization for Economic Cooperation and Development

R&D – Research and Development

S – Students

1. Introduction

The project #EuropeHome proposes a scheme with an aim to ensure favourable circumstances for students to earn competences, which are highly valued in the labour market and thus increase the employability of prospective graduates. Involving labour market actors in the design and delivery of programmes at universities, and including practical experience in courses will help to attune the curricula to current and emerging labour market needs and foster entrepreneurial awareness.

The **goal of the project** is to address the challenge of student employability and the need to increase the relevance of education.

The project is designed according to the framework Strategic Partnerships and the outcomes of the project are defined as Intellectual Outputs (IOs). The project involves eight partner institutions, comprising universities, organizations and other institutions:

- University of Alcala (Spain) – as the main project coordinator;
- University of Aveiro (Portugal);
- University of Latvia (Latvia);
- University of Thessaloniki (Greece);
- Technical University of Lodz (Poland);
- Campus Europae (a consortium of 21 universities in Europe);
- Collective Intelligence Centre (NGO enterprise in Riga, Latvia);
- ESN International (Erasmus Student Network).

The overall goal of the project is to address the challenge of student employability and the need to increase the relevance of education by focusing on 4 main pillars:

- **Employability and entrepreneurial education** - in order to directly address the entrepreneurial skills and foster entrepreneurial mind-sets by equipping graduates with the knowledge and core transferable skills via regular, targeted and high quality curricula and extra curricula activities;
- **Relevance of education** – in order to discuss the current mismatches of skills with employers, provide feedback on the relevance of education and propose short-term and long-term solutions;
- **Employability and mobility** - in order to increase the added value and maximize the impact of mobility on personal, professional and academic level by merging both academic and professional experiences;
- **Employability and internationalisation at home** – in order to encourage non-mobile students to participate in a part-time placement in their home country together with one international student (part-time placements will be done in tandems) therefore benefit from an 'international experience at home'.

The ultimate vision of the project is to create structured and mutually beneficial ecosystem for University - Business cooperation (win-win approach) that allow to develop new approaches and new study models that require students and graduates to act across traditional boundaries.

The general outcomes of the project will not be field specific and will be usable and adaptable for every field.

The expected outcomes and deliverables (tangible and non-tangible) with the implementation of the need analysis work are to obtain the needs analysis summary, based on the surveys conducted and needs identified, and therefore, setting the basis for the priority areas of the project materials and activities. This will allow to design the learning materials, with a draft version delivered and tested prior to an Intensive Programme (summer school) and a final version to be applied in the partner institutions, allowing to increase the awareness about the entrepreneurial skills among project partners and stakeholders.

The methodology of the present report of the Needs Analysis was based on:

- To design questionnaires to students, academic staff and employers;
- To distribute the questionnaires to the project partners and intended target audience;
- To collect and summarize the data;
- To add general literature (available statistics) reviews on the topic concerned.

The present report is structured as follow. After this introduction, in chapter 2 that addresses the importance of student employability and the need to increase the relevance of education in the actual European context based on European statistics and literature review. Chapter 3 presents the Needs Analysis results and discussion. The chapter 4 compares the results obtained for the needs analysis through the three surveys and use it to support the development of the learning materials. The chapter 5 concludes.

2. Student employability and the need to increase the relevance of education in the European context (Literature Review)

The last century, with its economic expansion and social development, brought to all children in western countries the right to education. Nowadays, to make European countries able to face economics competition and technology's fast development, that it is not enough. They mainly need people learning throughout their lives, lifelong learners able to constantly adapt and improve, able to maintain their competitiveness in the labour market. This highly competitive and dynamic context and the adverse employment conditions currently affecting many countries in Europe explain why the concept of employability "*has been a hotly debated issue in recent years*" (Oria, 2012, p. 218). Since the higher rate of youth unemployment tends, in some European countries, to be particularly serious in those who recently finished higher education, it is important to study the graduates' employability.

The youth unemployment rates in the European Union has been very high and reached in December 2012, according to Eurostat statistics, to 23.4 % of people aged from 15 to 24. In the last years countries such as Greece, Spain and Italy have been confronted with a high increase in their youth unemployment rates, over 55 per cent in the Greek case (Versteele, Londers & Ludo, 2014). According to these authors, in Portugal, Italy, and some eastern European countries more than one third of people aged from 15 to 24 were unemployed.

Table 2.1 reinforces this idea illustrating with more detail the employment rate of European young adults. In fact, from 2008 to 2013 there was a general increase of unemployment in all EU member states except in Germany, Malta, Austria and Romania which, actually, increased their employment rate. In a closer analysis, the rate of employment in Malta, particularly, between young with higher education reached 91.2%, the best rate of the 28 states. On the other hand, Italy was the country with the lower rate of employment (50.2%) between young with higher education, with a sharp decrease of youth employment from 2008 to 2013

Greece, Spain, Latvia, Poland and Portugal, the countries studied in this report, followed the general trend of employment decrease but with distinct levels. For example, the rate of employment in Latvia and Poland in both years were higher than the EU-28 average, in turn the rate of employment in Portugal, Spain and Greece was way below from the EU-28 average, especially in the cases of Greece and Spain. Furthermore, the decrease of the employment rate from 2008 to 2013 was particularly severe to these two countries; Greece, for instance, recorded 23 percentage points of employment decrease from 2008 to 2013 in tertiary education and Spain 14.8 percentage points.

Still in Table 2.1 it is clear noticeable that higher education graduates have higher rates of employment than those with lower levels of qualification in all EU Member States, however, authors as Versteele, Londers and Ludo (2014, p.4) claim that "*although university graduates tend to have the highest employment level in each age group, highly educated young people*

have a much higher unemployment rate than people with the same education in elder age". The long-term youth unemployment is increasing in the EU as well (Eurofound, 2012).

Table 2.1 - Employment rate (%) by level of educational attainment of young adults (25-29 years) in 2013

	Total employment rate		Less than primary, primary and lower secondary		Upper Secondary		Tertiary education	
Year	2008	2013	2008	2013	2008	2013	2008	2013
EU-28	**75,6**	**70,5**	**61,8**	**51,4**	**75,7**	**71,5**	**84,0**	**78,5**
Belgium	80,1	75,0	55,5	52,6	81,0	75,9	89,1	83,6
Bulgaria	75,0	61,4	47,9	29,4	79,0	64,5	87,3	73,6
Czech Republic	75,8	74,6	49,6	46,0	76,7	75,7	80,2	77,6
Denmark	83,3	72,8	75,2	56,0	85,9	77,0	88,4	79,2
Germany	**74,8**	**77,6**	54,4	54,1	75,3	78,9	87,1	86,6
Estonia	78,8	74,3	70,2	61,9	82,4	73,0	77,9	78,9
Ireland	79,6	68,5	56,0	39,9	79,1	65,0	87,5	79,4
Greece	72,9	48,7	70,7	44,1	72,0	46,5	**76,0**	**53,0**
Spain	75,2	58,1	68,5	49,7	76,4	58,0	**80,3**	**65,8**
France	78,8	74,6	60,2	51,5	79,2	73,1	86,5	83,7
Croatia	76,6	61,5	55,6	37,4	77,0	61,1	84,0	68,7
Italy	64,3	52,7	60,4	47,8	67,6	56,0	61,3	**50,2**
Cyprus	81,8	71,4	76,7	67,9	77,7	70,1	86,5	72,9
Latvia	79,9	76,3	62,8	60,0	80,3	73,4	**89,0**	**85,0**
Lithuania	77,3	77,3	56,0	46,9	73,7	70,5	86,8	88,5
Luxembourg	74,4	76,0	70,9	74,7	72,3	73,3	78,5	78,7
Hungary	70,7	69,0	43,6	37,2	71,5	70,5	83,1	80,8
Malta	**80,9**	**83,3**	70,2	71,5	88,7	88,0	94,9	**91,2**
Netherlands	88,4	81,6	74,2	65,6	89,5	80,6	93,3	88,7
Austria	**79,9**	**80,5**	60,9	57,0	82,0	83,1	84,9	84,0
Poland	76,3	73,0	52,5	39,8	73,7	70,7	**85,2**	**80,2**
Portugal	78,6	68,0	79,1	63,0	75,1	70,9	**81,1**	**71,0**
Romania	**69,2**	**70,1**	57,0	56,9	67,7	71,0	85,8	79,3
Slovenia	82,9	70,7	63,3	50,9	82,3	69,3	87,4	76,5
Slovakia	73,7	67,0	27,0	25,7	74,5	68,2	81,8	72,0
Finland	79,3	74,7	69,2	55,1	76,6	73,2	87,6	82,7
Sweden	80,6	77,6	65,7	54,2	82,4	79,8	84,1	82,5
United Kingdom	79,6	77,8	58,1	53,9	80,1	78,3	89,6	87,1

Source: Eurostat, EU Labour Force Survey (2014)

Equally in the high education area the Table 2.2 shows the unemployment rate of graduates according their academic field. As expected, the common trend is that unemployment rates increased in the majority of the fields from 2007 to 2009. The field with the lowest rate of unemployment in both years was Health and Welfare, and the highest was Humanities and Arts (15.1%) in 2007 and General Programs (14.6%) in 2009. Social Sciences, Business and Law

and the Engineering, the education field of the majority of the respondents of this report, were in the middle of the table with an unemployment rate of 10.7% and 12.4% respectively in 2009. However, according to the European Vacancy Monitor (2013), the most recent data tend to be more positive, since Engineering staff were employed in greater numbers in 2012 in a large number of countries as well as staff from administration and business which, actually, were in 'Top 10' of growth occupations.

Table 2.2 - Unemployment rate by year and academic field

	Unemployment rate by year	
Academic Field	2007	2009
Education Science	9.82%	9.64%
Humanities & Arts	15.1%	14.5%
Foreign Languages	10.0%	11.1%
Social Sciences, Business & Law	10.5%	10.7%
Physics, Chemistry & Biology	14.3%	7.23%
Mathematics & Statistics	7.04%	7.87%
Computer Sciences	7.93%	11.0%
Engineering	11.1%	12.4%
Agriculture & Veterinary	11.1%	9.90%
Health & Welfare	4.12%	5.80%
Services & Tourism	10.1%	15.4%
General Programs	13.0%	14.6%

Source: Eurostat, 2014 (own elaboration)
Note: the % do not add up to 100% since the category "other" is not included in the table

In the last decade, the increasingly importance of employability concept has been also tied with the Bologna Process reform of the European higher education system and the new Europe Strategy 2020. The Bologna Process presupposes that the assessment of higher education system (universities and polytechnic institutes, public and private) should be based on the employability of their graduates (Cardoso et al, 2014).

Based on the principle that human capital is considered one of the driving forces of economic development the policy makers have prioritized investing in education and training as a way of improving the existing skills and competences (European Commission, 2013). This relevance given to skills is reflected in the EU 2020 strategy, which aims at smart, sustainable and inclusive growth' through improved coordination of national and EU policy.

The Europe Strategy 2020 has for the tertiary education the target of reaching at least 40% of 30-34 years old people a high education qualification by 2020. And according to the three main challenges of the strategy Europe 2020 the Higher Education Institutions (HEI) of the member states should develop their education systems in a modern knowledge-based economy orienting them to fulfil the needs of the labour market. In a knowledge-based society, if on one side the development of entrepreneurial skills are crucial, on other side the graduate employment rates are usually used "*as one criterion for assessing the relevance of higher education provision to the needs and demand of the labour market, although these employment rates are also affected by short-term fluctuations in labour demand due to economic cycles*" (EC, 2014, p.3). So, consequently the importance of the improvement of skills, competences and other ways to increase and promote the employability has grown on its relevant in the transition and competitiveness of the graduates from the higher education system to the labour market as well as discussions about the role of higher education on it.

The Europe Strategy 2020 besides aiming to increase higher education (HEI) attainment in 2020 by 40% of young people that have successfully completed HEI studies, has another key targets like raising population employment levels, increasing investments in Research & Development (R&D) and innovation, reducing greenhouse emissions, reducing school drop-out rates and reducing the risk of poverty, all of which directly or indirectly imply an improved knowledge base in the population. One of the flagship initiatives for the 2020 Strategy is the 'New Skills and Jobs' initiative. Through this initiative the EU aims to stimulate and to anticipate changes in the skills needed for the future, as well as to realize a better matching between available skills and those required in the labour market, and to bridge the gap between the HEI and the labour market (Humburg, Van der Velden & Verhagen, 2013).

Although there is no universal definition of employability, there are still various definitions used. There are definitions focused on graduate short-term employment outcomes: having the skills that are more appealing for employers and, thus, enabling the graduate to find a job (Oria, 2012). There are also definitions that distinguish between employability and employment: "*employability implies something about the capacity of the graduate to function in a job, and it is not to be confused with the acquisition of a job*" (Yorke, 2006, p. 6). Some authors like Cardoso et al (2014, p.18) use an even broader definition of employability "*the quality or possibility of having a job, taken here in the lactu sensu of being an employee or self-employed. In this sense, employability also refers to entrepreneurship and the ability to create jobs, either for oneself and/or for others*".

In this report, a definition similar to that of Yorke and Knight (2006, p. 5) is used and is based in a set of skills and attributes that improve graduates' ability to have a job and to be "*successful in their chosen occupations, which benefits themselves, the workforce, the community and the economy*."

To improve their employability it is expected that graduates develop a set of skills beyond those traditionally explicit in higher education studying programmes (Rao, 2014). The latter are called hard skills and correspond to formal or technical knowledge, they are also known as core skills, domain skills, and technical skills. The former are soft skills, they are rather in the domain of personality, attitude and behaviour than in the area of technical issues taught in higher education institutions, and are also called interpersonal skills, life skills or employability skills. Both of those skills are necessary to achieve professional success: the soft skills complement the hard skills in leading graduates to a successful career. One American study has shown the soft skills' primordial importance in employability: "*technical skills and knowledge account for about 15 percent of the reason an individual gets a job, keeps the job and advances in that job (Crosbie, 2005). The remaining 85 percent of job success is based on individual's soft skills. (...) Hence, what carries more weight appears to be soft skills rather than brainpower or technical skills*" (Idrus, Dahan, & Abdullah, 2009, p. 69-70).

The soft skills involve a large range of skills. Nevertheless, those more appointed by several authors (Bhattacharyya, 2011; Oria, 2012; Tymon, 2013; Ward & Yates, 2013) are focused on communication, teamwork, personal and interpersonal skills. Bhattacharyya (2011, p.21) postulates that these skills *"are necessary to communicate, formally and informally, with a wide range of people both internal and external to the organization; work effectively in teams, often more than one team at once, and to be able to re-adjust roles from one project situation to another in a changing work situation*."

The concept of soft skill involves also personal attributes, like intellectual potential, willingness to keep learning, easiness in decision making, flexibility in adapting to change, problem solving, critical thinking, creativity, initiative, self-motivation and enthusiasm, stress management, sense of humour, and self-efficacy: "*These personal attributes are important to allow graduates to fit into the work culture, do the job, develop ideas, take initiative and responsibility and ultimately help organizations deal with change*" (Bhattacharyya, 2011, p. 21).

If studies show that skills, some more than others, are flexible and can be developed through training (Oria, 2012; Tymon, 2013), changing personal attributes, as personality traits that they are, is a more contentious subject because, by definition, they tend to be stable in adults. Nevertheless, some believe that although their development is a long-term and slow process, they can also be developed if the individual has that will (Tymon, 2013). Hence, if schools of HEI can produce programs that improve skills, they can stimulate students to try to change their personal attributes.

Traditionally, HEI has been more focused in teaching discipline-specific skills, those necessary to fulfil specific occupational requirements: "*the employability of graduates should not be seen as the primary focus of higher education (…) the achievement of learning outcomes in higher education should be regarded as a value in itself*" (Oria, 2012, p. 219). Nowadays, the relation between employability and HEI has changed: the current paradigm, the human capital theory, sees education as essential to participation in the knowledge-based global economy.

The development of employability skills are increasingly viewed not only as a personal achievement, but as an institutional or even governmental enterprise. According to Oria (2012, p.219) "*Graduates' employability potential has become the focus of European governments, which are requiring universities to take responsibility for the development of transferable skills relevant to employment in their students (…). Universities' engagement with employability is partly justified by the positive effects at a broader economic level*".

Table 2.3 - Definition of some of the twenty-first century skills

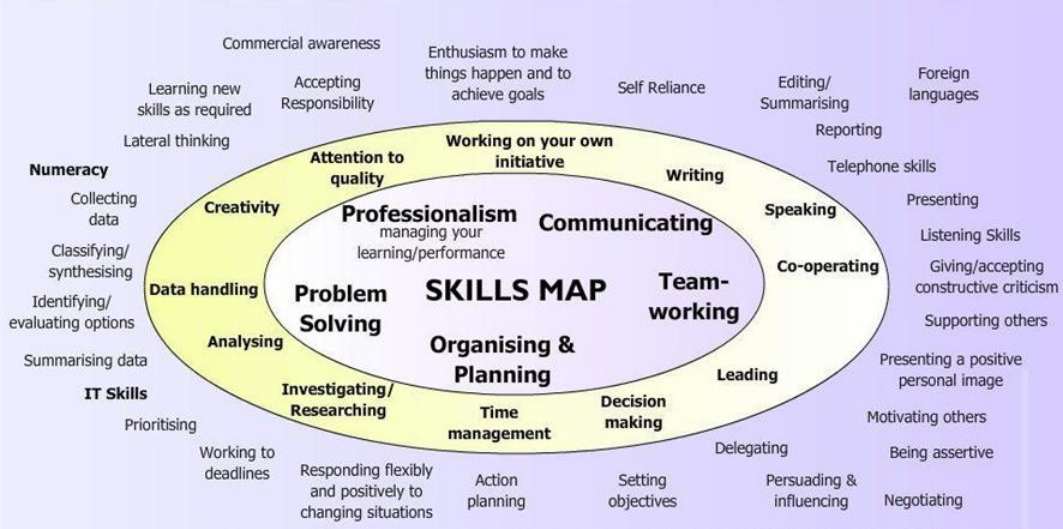
Skills	Explanation
Communication	Ability to express oneself clearly and to listen to others
Problem solving	Ability to perform tasks and solve problems by reasoning and bringing together prior knowledge and experience in new ways
Critical thinking	Ability to assess and relate received information by using one's own critical faculties
Collaboration	Ability to work together with others in different groups striving for a common goal
Creativity	Ability to think differently and create new objects, ideas, and methods
Information literacy	Ability to receive, utilize, and apply information from diverse media sources
Technical Proficiency	Ability to utilize and apply technology and ICT in various everyday life situations
Cultural awareness	Knowledge of one's cultural background and ability to respect and adapt to other cultures
Social responsibility	Knowledge of one's responsibility toward other people and ability to consider and treat them as equals

Source: Adapted from Ahonen and Kinnunen (2015)

Frameworks of twenty-first century skills have attained a central role in school development and curriculum changes all over the world. The skill sets have been defined in various educational initiatives in the OECD, European Union, USA and Australia. These definitions (Table 2.3) are quite similar and all include elements of collaboration, communication, Information and Communications Technology (ICT) literacy, and social/cultural skills, along with skills such as civic participation, creativity, critical thinking, and problem solving (Ahonen & Kinnunen, 2015). A study undertaken by the University of Kent (2011) about the most valued skills in the

current job market have identified distinct skills and the most important were in agreement with the defined framework of the twenty-first century skills: communicating, professionalism, team working, problem-solving, organizing and planning (Figure 2.1).

Particularly, in the business and management field there is a general agreement on the importance of communication skills and several studies corroborate this idea. There is also the recognition of the need to include communication skills in the academic curricula (Conrad & Newberry, 2012). Wilton (2008) in their study about business graduates found that spoken communication was the most important and used skill by business graduates in their jobs as managers, followed by management skills and ability to work in teams. Gray and Murray (2011) found out that New Zealand accountancy employers consider oral communication skills to be extremely important in new graduates with 49.6% of the respondents stating that this skill is essential in new graduates and 41.4% very important on a rating scale from 1 to 5, where 1 was 'not important' and 5 was 'essential'.



Source: University of Kent (2011)

Figure 2.1 - Skills map

Riemer (2002) in their study about engineering graduates' skills found that language and communications skills were fundamental to engineers as well. According to him engineers must be able to employ new communication technologies, particularly when this communication occurs on a global scale. In the same line of thought, Greenwood (2007) state that communication skills play an important role in how employers, peers, customers, and other stakeholders perceive the modern engineer.

Other skills were also observed as important, for example Hernández-March, et al (2009) found that the skills that employers value the most in graduates were technical field-specific knowledge, as well as interpersonal skills with major importance to teamwork ability and finally communication as an important cognitive soft ability.

3. Needs Analysis, Results and Discussion

Main objectives, target audience and methodology

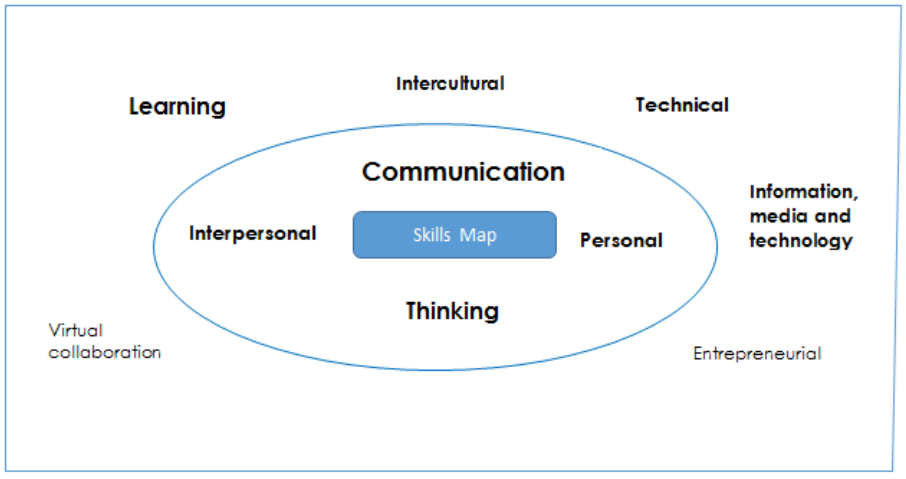
Taking into account the main goals of the present project, and based on the literature review about employability of students and graduates, there were three questionnaires to three target groups implemented: Students, Employers and Academics. The three questionnaires were delivered through the Survey Monkey website; therefore, in the appendices A1, A2 and A3 a converted version to Microsoft word format is provided nevertheless the content remains equal to the original version. The questionnaires were implemented in an English version to all the students and academics of the five partner universities in the fields of business, economics and engineering. For the employers, the survey was translated to local languages, with exception of the Aristotle University of Thessaloniki, Greece, and sent to a database of companies owned by each university.

The skills and competences analysed were based on the purposes of the project and on the literature review. The main skills and competences were merged in a group of skill summarized in table 3.1 as well as illustrated in the figure 3.1.

Table 3.1 - Definition of the graduates most essential skills

Skills	Explanation
Technical skills	Professional field related skills to accomplish specific tasks etc.
Virtual collaboration skills	Ability to work productively in a virtual team environment
Information, media and technology skills	Ability to obtain and process information
Thinking skills	Critical, analytical, strategic thinking etc.
Entrepreneurial skills	Flexibility, opportunity seeking, risk-taking etc.
Learning skills	Ability to learn independently, curiosity and drive for continuous learning etc.
Intercultural skills	Command of more than one language, work in culturally diverse teams etc.
Interpersonal skills	Ability to work in a team, ability to manage conflicts, networking etc.
Personal skills	Self-confidence, positive attitude, strong work ethics etc.
Communication skills	Ability to listen, express and present ideas, ability to persuade, to negotiate etc.

Source: Own elaboration

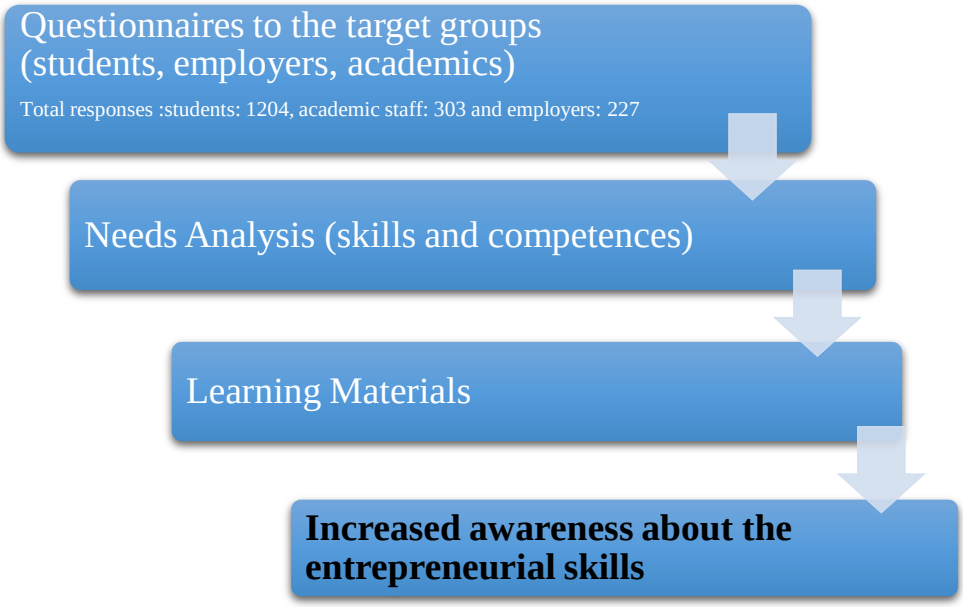


Source: Own elaboration

Figure 3.1 - Essential skills of graduates

The methodology of the Needs Analysis Report was defined during the first meeting of the Steering Committee of the project in January 2015 in Alcala de Henares. The Needs Analysis Report shall identify the common learning outcomes to be worked on further in the project and implemented via the Learning Material on entrepreneurial education. in the partner universities as teaching and learning methodologies and content of training courses, workshops or seminars (Figure 3.2).

To collect the necessary data, three questionnaires were sent by email to the target audience, and a survey was promoted and conducted by each one of the five partner universities: Aristotle University of Thessaloniki (Greece), Technical University of Lodz (Poland), University of Alcalá (Spain), University of Aveiro (Portugal) and University of Latvia (Latvia).The sample was based in all the available database contacts of the three target groups. The data was collected during March, 2015. The total number of valid responses was 1204 for students, 303 for academics, and 227 for employers.



Source: Own elaboration

Figure 3.2 - Methodology of the needs' analysis report

The collaboration structure between universities and employers will be developed and will be the basis for sustaining the proposed scheme after the project lifetime.

A database of partner institutions with companies will be created during the project years and is expected to gradually increase, as well as synergies within the several actors. Moreover, #EuropeHome collaboration structure will promote ongoing and regular cooperation between academia (students and academics) and employers with an aim to diversify activities and establish mutually beneficial collaboration patterns and put intentional effort to modernise, diversify and expand the curricula and extra curricula offer at each project partner university.

The Collaborative Structure is part of the holistic approach of the #EuropeHome project and is expected to bring education closer to the world of work. This chapter presents and discusses the results from the three Questionnaires implemented.

3.1. Needs Analysis - Students' Questionnaire

The respondents' socio-demographic results are shown in table 3.1.1. The inquired students come mainly from Portugal (37%) and Poland (20%). Regarding their academic status the greater part is a current student (60.9%) with a bachelor degree (46.1%) or a master degree (42.9%) and the majority is in their 4th year (25.6%) and 2nd (22.3%) year of studies. Almost half of the students are from the Engineer/Computing field followed by students from Business and Management studies (29.4%). As far as mobility is concerned less than half of the students studied aboard and even less (22.2%) did an internship in a foreign country. Over 90% of the students states that their university cooperates with companies.

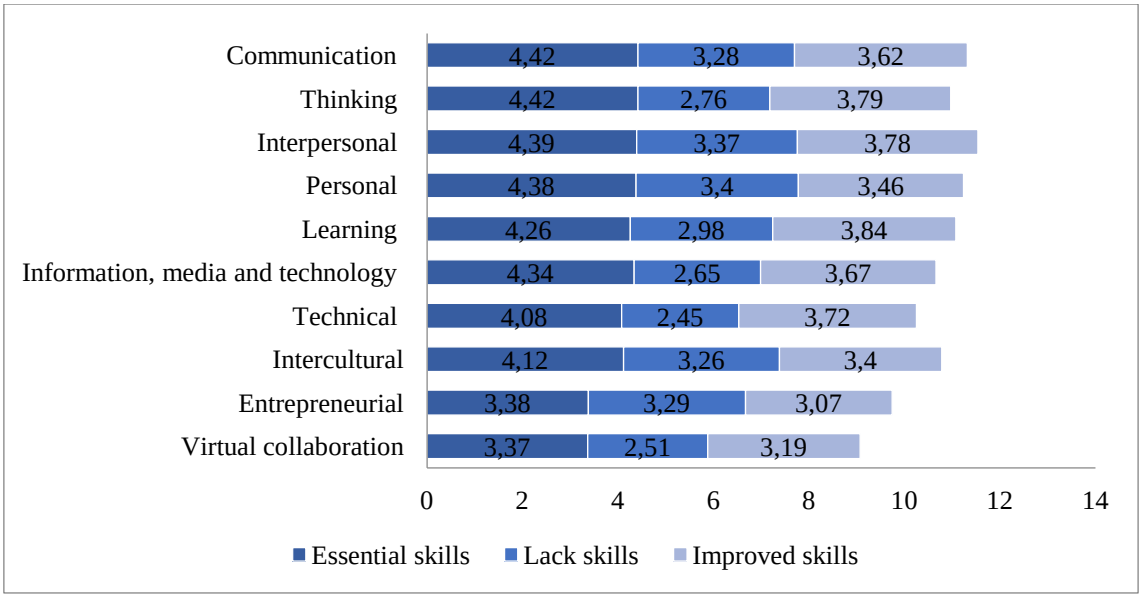
Table 3.1.1 - Students' profile

Socio-demographic data	Characteristics	Percent (%)
Country of residence	Portugal	37%
	Poland	20%
	Spain	17%
	Latvia	15%
	Greece	6%
	Other	5%
Student status	Current Student	60.9%
	Former Student	39.1%
Degree of studies (or the highest acquired)	Bachelor Degree	46.1%
	Master Degree	42.9%
	Doctoral degree	5.4%
	Other	5.6%
Year of studies	1st year	14.9%
	2nd year	22.3%
	3rd year	17.8%
	4th year	25.6%
	5th year	19.3%
Field of studies	Engineering/Computing	39.5%
	Business/Management	29.4%
	Economics	20.2%
	Other	10.9%
Mobility study period (foreign country)	Yes	40.5%
	No	59.5%
Internship (foreign country)	Yes	22.2%
	No	77.8%
Cooperation between university and companies	Yes	90.5%
	No	9,5%

Source: own elaboration

It was asked to the inquired students to rate 10 listed skills regarding three distinct variables: the first one was about the importance of skills in order to get a job in their own fields categorized as *essential*; the second one was about skills that students consider they lack most in order to get a job in their own fields categorized as *lack*; and the third one regards to the most improved skills at the university categorized as *improved*. All the skills have been rated between 1 and 5 according to Likert scale in which 1 corresponds to *not important* category and 5 to *very important* category. The results are merged in the Figure 3.1.1 in order to allow a prompt comparison between the three different variables.

There is clearly noticeable in the Figure 3.1.1 that the values of the three variables are quite similar with a range of values between 4 (*rather important* category) in the *essential* variable skills and 3 (*neutral* category) in both *lack* and *improved* variables skills which means that the most essential skills are at the same time the skills that students feel they lack most, for example, the communication skill with the highest rating of importance is also highly rated as a lacking skill. This might be explained by the fact that students recognize how important is a good command of communication skill to get a job nowadays and, thus, they feel that this skill should be better addressed by higher institutions, which may even explains the neutral rating of the this very skill in the *improved* variable. This is also true for other highly rated skills such as interpersonal and personal skills. One exception to this clear trend is the thinking skill that although students considered it as quite important in the *essential* variable skills they do not feel to lack it in the same extent which may be explained by the fact that students feel to fairly improve this skill in the *improved* variable.



Source: own elaboration

Figure 3.1.1 - Students' skills comparison and evaluation

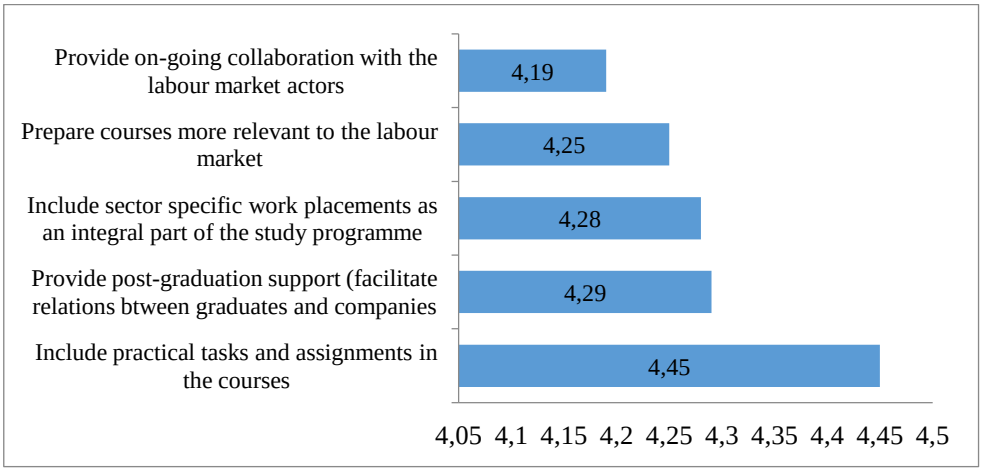
Reinforcing this idea the least rated skill in the *essential* variable i.e. the virtual collaboration skill is also between the skills that students feel they lack less. Other skills least lacked by students are the technical and the information, media and technology skills which record middle values in the *essential* variable.

One should also underline that, as expected, the learning skill is the highest rated skill in the *improved* variable. On the other hand, the entrepreneurial skill is the least rated in the *improved* variable and is equally lowest rated in the other two variables; therefore, one might say that students do not consider this skill as important as others like communication and thinking skills.

A part from rating the above skills, students also rated 5 listed measures on which universities should focus in order to improve the students' employability. Once again was used the Likert scale in which 1 corresponds to *not important* category and 5 to *very important* category. The five given variables were all rated as *rather important* with slight variations of values; however,

the highest rated variable is to include a practical dimension in the courses as we can see in Figure 3.1.2.

Using the same Likert scale, from 1 to 5, students also rated aspects which companies take into account when recruiting. These results showed that according to the students' vision the field-related work experience as well as the specific professional skills and knowledge are the most important characteristics that employers search in an employee. On the other hand, the remaining aspects such as a study experience abroad or a field-related internship experience abroad were rated as neutral i.e. students think that employers value less these characteristics. However, according to our results for 83.5% of the inquired students an international job experience is seen as quite important. Hence, one might say that despite of students recognize the importance of abroad experiences they feel that employers do not value this experience as much as they do.



Source: own elaboration

Figure 3.1.2 - How should universities to improve the employability of future graduates

3.2 Needs Analysis – Employers' Questionnaire

The socio-demographic results of the inquired companies are presented in table 3.2.1.The majority of the inquired companies are established in Portugal (42%) and in Spain (33%). Regarding dimension the majority employs a number equal or superior to 250 employees (i.e. large enterprises) and then 23.9% of the companies employ between 50 to 249 workers (i.e. small and medium enterprises). Over 90% of the companies are private and work in the tertiary sector (62.4%). Concerning the level of education companies tend to have a high number of graduates: 57.8% (have more than 26% workers with a higher education degree). The higher education filed most needed by companies is Engineering/Computing (83.5%). In respect to respondents' profile the majority holds a position in the Human Resources Department (49%) and a Master degree (53.1%). A greater number is aged between 30 to 39 years old and then between 40 to 49 years old. The level of interaction with foreigners is relatively low with more than a half of the respondents spending less than 25% of their time interacting with foreigners.

It was asked to the inquired companies to share their perceptions about the students' skills and was inferred that over 90% of the inquired companies agree that the graduates hired in the last three years hold the required skills to work with them. Nevertheless, it should be noted that

almost half of the companies only *somewhat agree* with this claim which may suggest that there is need to improvements in some specific skills..

Table 3.2.1 - Companies' profile

Socio-demographic data	Characteristics	Percent (%)
Country of residence	Portugal	42%
	Poland	21%
	Spain	33%
	Latvia	4%
Number of employees	<10	17.6%
	10-49	22.9%
	50-249	23.9%
	>=250	35.6%
Ownership structure	Private	94.6%
	Public	1.5%
	Mixed	3.9%
Field of economic activity	Primary sector	1%
	Secondary sector	36.6%
	Tertiary sector	62.4%
Graduates (higher education) currently employed in each company	None	2.7%
	Less than 25%	39.5%
	Between 25% and 50%	19.7%
	More than 50%	38.1%
Education field most needed by companies (higher education)	Engineering/Computing	83.5%
	Business/Management	37.4%
	Economics	25.9%
Position of the respondent in the company	Human Resources Department	49%
	General Managers/ Directors/ Managing Director	19.6%
	Other	31.5%
Academic qualifications of the respondents	Less than an undergraduate degree	6.9%
	Undergraduate degree	38.6%
	Master degree	53.1%
	Doctoral degree	1.4%
Age	Under 30 years old	19.3%
	30-39 years old	35.9%
	40-49 years old	29%
	50-59 years old	15.2%
	60 years or older	0.7%
Day-to-day work interacting with foreigners	None	10.9%
	Less than 10%	28.6%
	Between 10% to 24%	24.5%
	Between 25 to 50%	14.3%
	More than 50%	21.8%

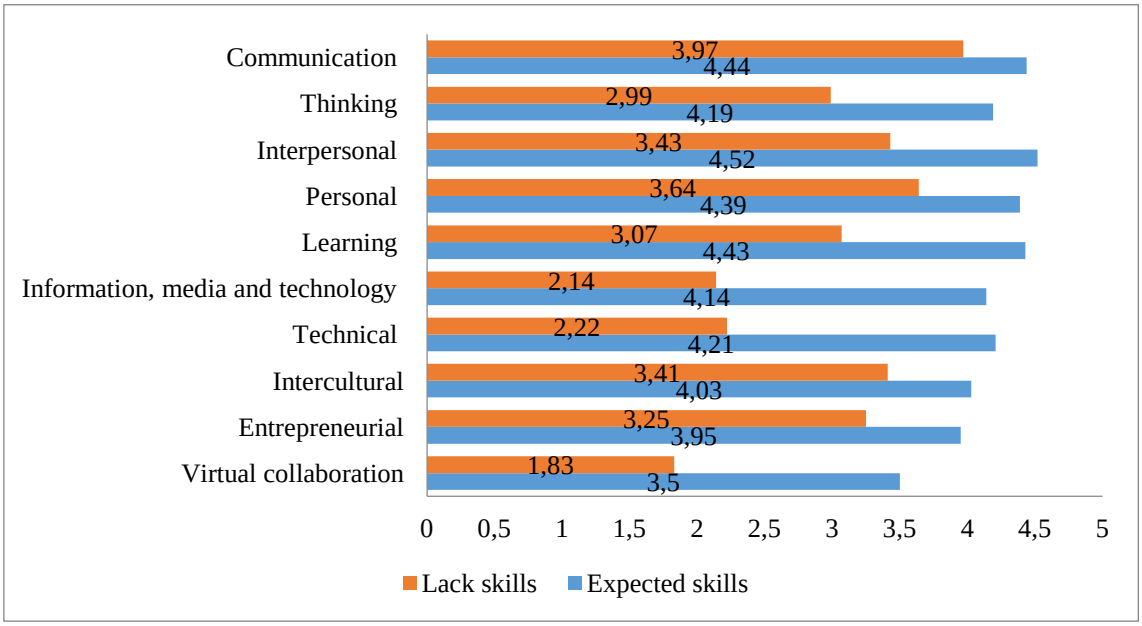
Source: own elaboration

The companies also rated 10 listed skills that according to their opinion students should hold - categorized as *expected skills*[1] - as well as skills that companies think that graduates do not hold - categorized as *lack skills*. All the skills have been rated between 1 and 5 according to Likert scale in which 1 corresponds to *not important* category and 5 to *very important* category. The results are merged in the Figure 3.2.1 in order to allow a prompt comparison between the two distinct variables.

[1] *Essential* and *expected* skills are used in the text in an indiscriminate way

According to the Figure 3.2.1 almost all the 10 skills are rated as *rather important* only two skills: the entrepreneurial and the virtual collaboration do not reach the 4 points in the provided scale, therefore, in the employers' view graduates should hold a wide set of skills to get a job which suggest a quite competitive a demanding labour market.

It should be noted that in general the highest rated *expected skills* like communication and interpersonal skills are equally the highest rated in the category *lack skills* and vice versa, for example, the least rated *expected skill* i.e. the virtual collaboration is likewise the least rated in the category *lack skills* without even reach 2 points. This result should be borne in mind since it might means a mismatch between the skills that students hold and the skills actual demanded by the labour market. In other words, the most valued skills to employers are those that students less hold and consequently need to be improved. Furthermore, this result is in accordance with the first inferred result about the required skills that students should hold.



Source: own elaboration

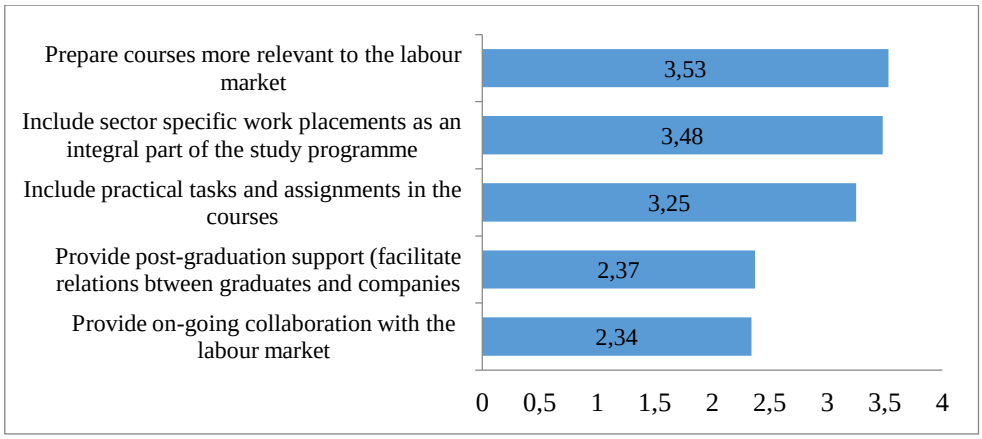
Figure 3.2.1- Companies' perceptions about students' skills – comparison & evaluation

In the same line of thought, one can conclude that technical skills as well as information, media and technology are the skills that students better hold since employers recognize these skills as rather important and at the same time do not consider it as in lacking.

A part from rating the above skills, employers also rated measures on which universities should focus in order to improve the students' employability. Once again was used the Likert scale in which 1 corresponds to *not important* category and 5 to *very important* category. Between the 5 presented measures the most important one according employers' views is to "prepare courses more relevant to the labour market", followed by to "include practical tasks and assignments in the courses" as is illustrated in Figure 3.2.2.

Over 95% of the employers stated to be interested in directly cooperate with universities. Furthermore, over 30% is willing to do it regularly and 34% occasionally which together represents a great margin of cooperation. For more than 80% of the employers the best way to cooperate with universities is through "organising internships for students", followed by

"cooperation with career centres" stated by more than 60% of the respondents. Almost half of them mentioned "participation in courses, debates or seminars organised by universities" as an equally important way to promote collaboration between the two institutions.



Source: own elaboration

Figure 3.2.2 - How should universities to improve the employability of future graduates

Using the same Likert scale, from 1 to 5, employers equally rated aspects that they, as companies, take into account when recruiting. These results showed that according to their vision specific professional skills and knowledge as well as academic qualifications are the most valued characteristics that they search in an employee. On the other hand, study experience abroad and field-related internship experience abroad are the aspects least valued categorized as *neutral* aspects. Indeed, according to our results there is not a consensus among the employers regarding the importance of an international experience, this is, 40% of the employers do not value an international experience rating it as *neutral* however there are equally 40% of them that see it as an important experience.

3.3. Needs Analysis – Academics' Questionnaire

The respondents' socio-demographic results are illustrated in table 3.3.1. The inquired academics come mainly from Poland (64.8%) and Spain (16.9%). The majority holds a position of Assistant Professor (33.9%) and then of Associate Professor (25.6%). The academic areas most represented are Engineering/Computing (31.7%) and Economics (30.7%). Almost half of the academics have 11 to 20 years of experience and 23% have more than 20 years of experience. Besides their work as academics 38.5% of the respondents is involved in entrepreneurial activities and 36.5% undertakes teaching/research activities in different intuitions. As far as the interaction with foreigners is concerned less than half of the academics have a regular contact with people from other countries.

It was asked to the inquired academics to share their perceptions about the students' skills and was inferred that over 85% of the inquired academics think that the graduates hired during the last three years hold the required skills to enter in the labour market. Nevertheless, it should be noted that almost half of the academics only *somewhat agree* with this claim which may suggest that academics recognize that there is a need to improve some specific skills of students.

Reinforcing this idea was also found that academics only hold slight positive image instead of strong positive image about the graduates' competencies.

The academics also rated 10 listed skills regarding three distinct variables: the first one was about the skills that graduates should hold in order to get a job in their own fields categorized as *expected;* the second one was about skills that academics consider students lack most in order to get a job in their own fields categorized as *lack*; and the third one regards to the best covered skills in the current curricula of universities categorized as *best covered*. All the skills have been rated between 1 and 5 according to Likert scale in which 1 corresponds to *not important* category and 5 to *very important* category. The results are merged in the Figure 3.3.1 in order to allow a prompt comparison between the three different variables.

Table 3.3.1 - Academics' profile

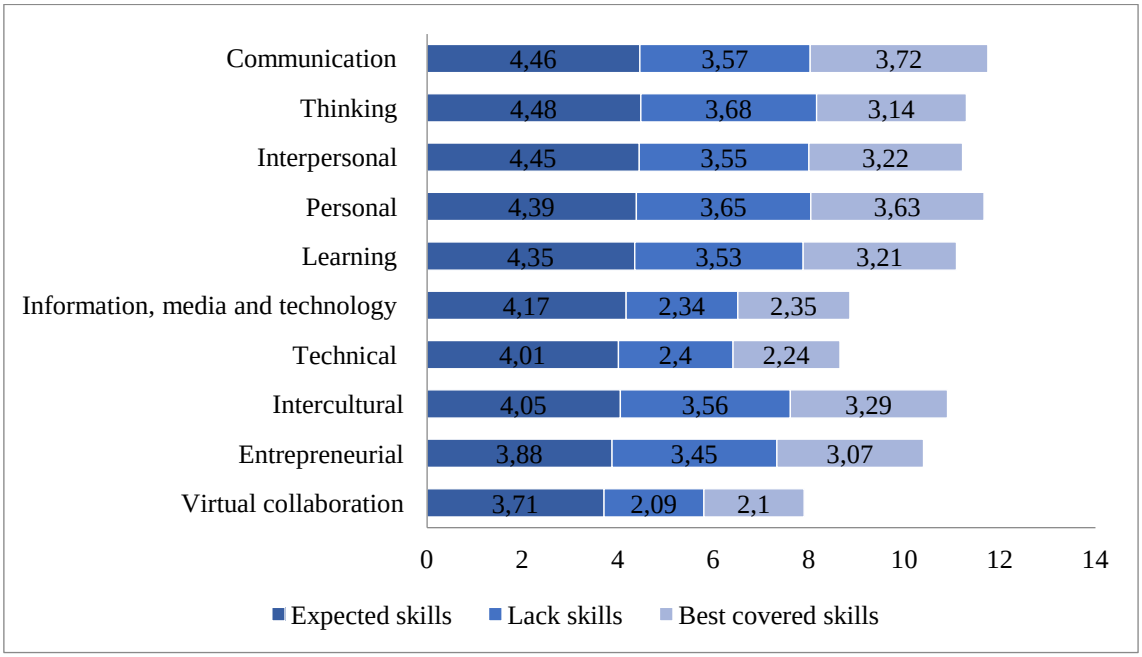
Socio-demographic data	Characteristics	Percent (%)
Country of residence	Portugal	12%
	Poland	64.8%
	Spain	16.9%
	Latvia	3.3%
	Other	2.6%
Position of the respondents	Assistant Professor	33.9%
	Associate Professor	25.6%
	Assistant	15.3%
	Lecturer	10.6%
	Other	14,6%
Academic field	Engineering/Computing	31.7%
	Business/Management	23.8%
	Economics	30.7%
	Other	13.8%
Years of experience	0-2 years	4%
	3-5 years	11%
	6-10 years	20%
	11-20 years	42%
	+20 years	23%
Exclusivity in the academic activity	Entrepreneurial activities	38.5%
	Teaching/researching	36.5%
	Non-Governmental activities	7.3%
	Other	17.7%
Day-to-day work interacting with foreigners	None	14.5%
	Less than 10%	47.8%
	Between 10% to 24%	21.8%
	Between 25 to 50%	9%
	More than 50%	6.9%

Source: own elaboration

There is clearly noticeable in the Figure 3.3.1 that the values of the three variables are quite similar with a range of values between 4 (*rather important* category) in the *expected* variable skills and 3 (*neutral* category) in both *lack* and *best covered* variables skills which means that according to the academics' views the most expected skills that graduates should hold are equally the skills academics think are the best covered currently, however, are at the same time the skills that students lack most. For example, thinking skill is the highest rated skill in the *expected* variable and is also the highest rated as a lacking skill as well as highly rated in the

best covered variable skill. This trend is mirrored by other skills like communication, interpersonal, personal and learning skills.

Furthermore, it should be noted that this is trend completely the opposite if one analyzes the least rated skills in all the three variables, this is, the virtual collaboration skills is, for example, the least rated skill in both *expected* and *best covered* variables and is equally low rated in the *lack* variable. These complex data might suggest that academics recognize the importance of students holding skills like communication, thinking and so forth in the current competitive labour market and, therefore, are more demanding with these very skills, i.e. academics feel they are doing a good job by imparting the most important skills (communication, thinking, interpersonal, personal) into students but they think that students are not apprehending these skills properly.



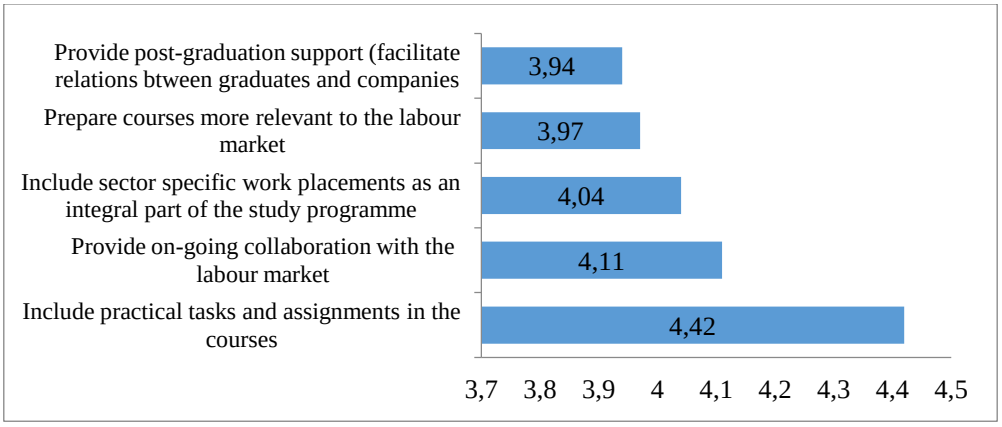
Source: own elaboration

Figure 3.3.1 - Academics' perceptions about students' skills – comparison & evaluation

A part from rating the above skills, academics also rated measures on which universities should focus in order to improve the students' employability. Once again was used the Likert scale in which 1 corresponds to *not important* category and 5 to *very important* category. Between the 5 presented measures the most important one according academics' views is to "include practical tasks and assignments in the courses", followed by to "provide on-going collaboration with the labour market actors" as is illustrated in Figure 3.3.2.

Over 90% of the academics consider quite important to establish ways of cooperation between universities and companies, as a consequence 40% claims to cooperate with companies occasionally and 25% does it regularly. Furthermore, over 80% of them are willing to enhance the ties of current cooperation; therefore, one might conclude that there is a room to grow regarding cooperation between these two institutions. For more than 70% of the academics the best way to cooperate with companies is through "offering real-life problem issues for students to solve and/or research on", followed by "organising internships for students" stated by 66% of

the respondents. More than half of them mentioned "participating on the employers in courses, debates or seminars organised by universities" as an equally important way to promote collaboration between both organizations.



Source: own elaboration

Figure 3.3.2 - How should universities to improve the employability of future graduates

Using the same Likert scale, from 1 to 5, academics equally rated the aspects which companies take into account when recruiting. These results showed that according to their vision specific professional skills and knowledge as well as field-related work experience are the most important characteristics that employers search in an employee. On the other hand, the remaining aspects such as a study experience abroad or a field-related internship experience abroad were rated as *neutral*, i.e. academics think that employers value less these characteristics. However, according to our results for 80% of the inquired academics an international job experience is seen as quite important. Hence, one might say that despite of academics recognize the importance of abroad experiences they feel that employers do not value this experience as much as they do.

4. Needs Analysis and the Development of Learning Materials to increase employability through entrepreneurial education

In this chapter the results from the three distinct surveys are merged and compared in order to define the learning material outcomes as well as its guidelines to achieve the project final goal, i.e. the enhancement of graduates' employment, and, thus the main conclusions drawn are:

- **Do graduates have the skills needed from companies?**

Both academics (88%) and employers (93%) believe that graduates that have been recruited in the last three years have the skills required to work in the respective companies. Nevertheless, it should be noted that many of respondents only *somewhat agree* with that (52% for academics and 41% for employers). Employers and academics seem to have a positive perception about graduates' competencies, but only slightly positive.

- **Skills respondents consider essential to graduates to work**

Students, academics and employers seem to have similar perceptions about which skills are essential for the labour market. All respondents consider that the ten skills presented are rather important.

All of them, on average, see the same two skills as little less than rather important: virtual collaboration and entrepreneurial skills.

The skills seen as more important are also very similar: **communication, thinking and interpersonal skills,** for students; **interpersonal, communication and learning skills** for employers; and **thinking, communication and interpersonal skills** for academics. The skills in common to the three groups are **communication and interpersonal skills** (Table 4.1).

Table 4.1 - Essential skills and competences

Ranking	Students	Employers	Academics
1	Communication	Interpersonal	Thinking
2	Thinking	Communication	Communication
3	Interpersonal	Learning	Interpersonal
4	Personal	Personal	Personal
5	Learning	Technical	Learning
6	Information, media and technology	Thinking	Information, media and technology
7	Technical	Information, media and technology	Intercultural
8	Intercultural	Intercultural	Technical
9	Entrepreneurial	Entrepreneurial	Entrepreneurial
10	Virtual collaboration	Virtual collaboration	Virtual collaboration

Source: Own elaboration

- **Skills respondents consider students' lack the most in order to work**

Students, academics and employers do not perceive any of the ten skills presented as lacking above a *neutral* point, in a scale between 1 and 5.

Between the three skills that the three groups consider that are lacking to a *greater* extent, the gaps in **personal skills** are common to all three groups, moreover lack in **communication skills** is common to employers and academics and lack in **interpersonal skills** is common to both employers and students (Table 4.2).

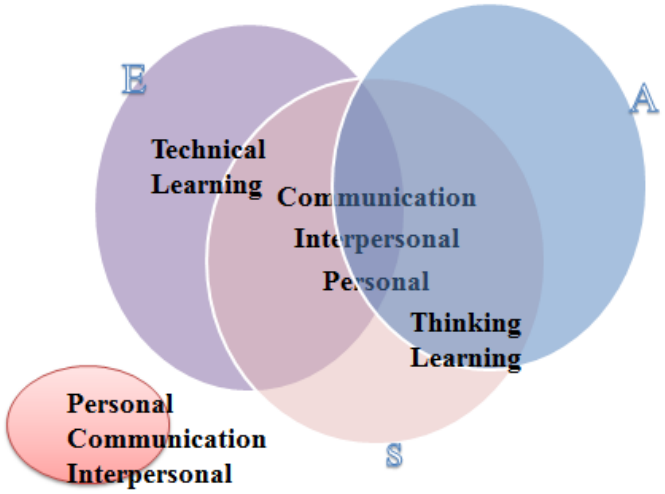
All the three target groups perceive the same three skills as *less* lacking, namely, virtual collaboration, technical, information, media and technology skills.

Table 4.2 - Lack of skills and competences

Ranking	Students	Employers	Academics
1	Personal	Communication	Thinking
2	Interpersonal	Personal	Personal
3	Entrepreneurial	Interpersonal	Communication
4	Communication	Intercultural	Interpersonal
5	Intercultural	Entrepreneurial	Intercultural
6	Learning	Learning	Learning
7	Thinking	Thinking	Entrepreneurial
8	Information, media and technology	Technical	Technical
9	Virtual collaboration	Information, media and technology	Information, media and technology
10	Technical	Virtual collaboration	Virtual collaboration

Source: Own elaboration

The figure 4.1 illustrates an overview of all the respondents' (students, employers and academics) views about the essential and lacking skills of graduates. Therefore, as presented in this figure **Communication, Interpersonal and Personal skills** are considered by all respondents as essential and, thus the attention should be focused mainly in these three skills. On the other hand, other important skills are ranked high only by one of the group of respondents, particularly, the Technical skills which are in the top five of the most essential skills that graduates should hold according to the employers' vision. Other two important skills are Thinking and Learning skills that are in the top five of both students and academics. It is also mandatory to pay attention to the three lacking skills which are for all the respondents **Personal, Communication and Interpersonal** and develop solutions to reverse the current paradox. Since all the above mentioned lacking skills are equally considered by all the respondents as *essential* is vital to solve this gap.



Source: Own elaboration

Figure 4.1 - Top five essential skills and Top three of lacking skills according to all the respondents - (E) employers, (S) students and (A) academics

- **Skills best covered in the current curricula**

There are differences between the perception that academics and students have about the skills developed in the current curricula. Academics see curricula as preparing students in respect to communication and personal skills, and students consider that the skills most improved at the university are learning, thinking, interpersonal and technical skills. Academics see curricula as having significant deficiencies in developing virtual collaboration, technical and information technology skills, while students perceive as the least improved entrepreneurial, virtual collaboration and intercultural skills (Table 4.3).

Table 4.3 - Skills best covered in the current curricula

Ranking	Improved skills and competences	Skills and competences best covered in the current curricula
	Students	Academics
1	Learning	Communication
2	Thinking	Personal
3	Interpersonal	Intercultural
4	Technical	Interpersonal
5	Information, media and technology	Learning
6	Communication	Thinking
7	Personal	Entrepreneurial
8	Intercultural	Information, media and technology
9	Virtual collaboration	Technical
10	Entrepreneurial	Virtual collaboration

Source: Own elaboration

- **In what measures universities should focus on more to improve the employability of their graduates**

In average, students and academics see all the measures presented as *rather important*. Students and academics rate all procedures with very similar values, but there is one with an average slightly higher: including a **practical dimension** in the courses (Table 4.4).

Employers, between the five presented ways to improve the employability of graduates, the measure they see as more important is "**prepare courses more relevant to the labour market"**, followed by "**include practical tasks and assignments in the courses"** and "**include sector specific work placements as an integral part of the study programme".**

Table 4.4 - Respondents' opinions regarding universities' measures to improve the employability of graduates

Raking	Students	Employers	Academics
1	Include practical tasks and assignments in the courses	Prepare courses more relevant to the labour market	Include practical tasks and assignments in the courses
2	Provide post-graduation support	Include practical tasks and assignments in the courses	Provide on-going collaboration with the labour market actors
3	Include sector specific work placements as an integral part of the study programme	Include sector specific work placements as an integral part of the study programme	Include sector specific work placements as an integral part of the study programme
4	Prepare courses more relevant to the labour market	Provide on-going collaboration with the labour market actors	Prepare courses more relevant to the labour market
5	Provide on-going collaboration with the labour market actors	Provide post-graduation support	Provide post-graduation support

Source: Own elaboration

- **In what way universities should cooperate with companies in order to improve the employability of their graduates**

About the best way to cooperate with companies in order to improve the employability of its graduates, most academics see as most adequate "offering real-life problem issues for students to solve and/or research on", "organising internships for students", and "participating on the employers in courses, debates or seminars organised by universities". For employers the preferred way to cooperate with universities is "organising internships for students", followed by "cooperation with career centres". So, both groups see the organization of internships as a good way to develop the cooperation between universities and companies.

To academics, the least chosen ways to cooperate with companies are "cooperation with career centres", "participation in relevant surveys", and "structured discussions with study programme directors or teachers". To employers, the least chosen are also "structured discussions with study programme directors or teachers", and "participation in relevant surveys", but also the "offering real-life problem issues for students to solve and/or do research on".

- **Aspects taking into account by companies when recruiting**

The aspects students and academics perceive as more desired by companies are field-related work experience and specific professional skills and knowledge. Employers value indeed those two aspects, as well as academic qualifications.

The aspects seen by students and academics as less demanded are study experience abroad and field-related internship experience abroad. Employers chose these two aspects related to international experiences as least desired.

- **Relevance of having previous international experience to work**

Students have a more positive perception of the importance of international experiences than academics, and those more than employers. While students and academics, from one scale between 1 and 5, having an international experience is seen, in average, as *rather important* (4.2 and 4.01, respectively), employers see it, in average, near the *neutral* point (3.31). Nevertheless, even between employers more respondents see it as important (40.4%) than not important (18.4%).

5. Conclusions

The learning material will be based on the Needs Analysis carried out among employers, academic staff and students in all the five partner universities of the project consortium, therefore, the content of the material should correspond the specific needs identified. The results from the Needs Analysis were complemented with 'project based tasks' defined by employers and tested during the Intensive Programme in Greece, Thessaloniki (Summer, 2015). Eventually the material will feed into an e-module to increase the availability and accessibility as well as provide modern, dynamic online environment where regular updates can be introduced and new material added.

The goal of the development of the learning material is to raise awareness of the entrepreneurial skills by proposing a holistic and transferable approach on how to address them in framework of ongoing courses, therefore, increasing the employability of students. The learning material must foster deeper understanding of entrepreneurship and foster holistic approach when tackling entrepreneurial education.

The main objectives are:

- to provide information about entrepreneurial skills, their relevance to the labour market and current needs;

- to raise awareness about the broader meaning of the term entrepreneurship (not limiting it to business) among the project stakeholders;

- to identify the skills/Learning Outcomes that students can acquire in the framework of #Europehome.

The results of the needs analysis suggest that the respondents consider the following skills the most important and essential to graduates to work:

- **communication, thinking and interpersonal skills,** for students;
- **interpersonal, communication and learning skills** for employers; and
- **thinking, communication and interpersonal skills** for academics.

So, the skills in common to the three groups are **communication, thinking and interpersonal skills.**

And the respondents from the three target groups consider the skills students' lack the most in order to work:

- in a *greater* extent, the gaps in **personal skills** are common to all three groups.
- **communication skills** is common to employers and academics.
- **interpersonal skills** is common to employers and students.

All the groups perceive as *less* lacking the same three skills: virtual collaboration, technical, information, media and technology skills (Figure 4.1).

The results of the Needs Analysis also allow to conclude that skills best covered in the current academic curricula are:

- By academics: communication and personal skills;
- By students: learning, thinking, interpersonal and technical skills.

But academics see curricula as having significant deficiencies in developing virtual collaboration, technical and information technology skills, while students perceive as the least improved entrepreneurial, virtual collaboration and intercultural skills.

The results also suggest that universities should focus on some measures to improve the employability of their graduates, like including a **practical dimension** in the courses through the "**preparation of courses more relevant to the labour market"**, followed by "**include practical tasks and assignments in the courses"** and "**include sector specific work placements as an integral part of the study programme".**

To best achieve the proposed goals, universities should cooperate with companies in order to improve the employability of their graduates, and the best way suggested to cooperate with companies is through an adequate "offering of real-life problem issues for students to solve and/or research on", "organising internships for students", and "participating on the employers in courses, debates or seminars organised by universities". As well, suggested for employers, "organising internships for students", followed by "cooperation with career centres". So, both groups see the organization of internships as a good way to develop the cooperation between universities and companies.

On the other hand, the aspects taken into account by companies when recruiting the most important aspect are field-related work experience, specific professional skills and knowledge and academic qualifications. Surprisingly, in the aspects seen as less important are study experience abroad and field-related internship experience abroad. However, students have a more positive perception of the importance of international experiences than academics, and those more than employers.

These outcomes from the Needs Analysis summary, based on the surveys conducted, allowed to identify the principal needs, these, therefore, setting the bases for the priority areas of the project materials and activities. So, this allow to identify the main skills priority to be developed in the learning materials, as a draft version to be delivered prior to the Intensive Programme 1 and a final version to be presented to the consortium during the 2nd annual consortium meeting.

The activities within the #EuropeHome project will focus on three specific fields – Business, Economics and Engineering. Although during the project lifetime it is recommended to keep the focus in these fields, it is equally important to ensure sufficient degree of flexibility for the final design of Intellectual Outputs in order to be useful for other fields.

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