



# SKILLS MISMATCH

*Employability and entrepreneurial skills of graduates*

Coord. Elisabeth T. Pereira

Greece | Latvia | Poland | Portugal | Spain



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# **Skills Mismatch**

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June, 2015



# Report of Needs Analysis

Project #EuropeHome

Intellectual Output 1

Needs analysis survey/report

University of Aveiro, Portugal

June, 2015



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## List of Abbreviations

A – Academics

AUT – Aristotle University of Thessaloniki

A3ES - Portuguese Higher Education Accreditation Agency

CRUP - Portuguese Rectors' Conference

E – Employers

ESN - Erasmus Student Network

EU – European Union

FS – Former Students

GEM - Global Entrepreneurship Monitor

HEI – High Education Institution

HERMES - Higher Education and Research in Management at European Universities

IAES - Institute of Social and Economic Analysis

INE – Statistics Portugal

IOs - Intellectual Outputs

IP - Intensive Programme

ITC - Information and Communications Technology

MECD - Ministry of Education, Culture and Sports

NGO – Non Governmental Organisation

OECD - Organization for Economic Cooperation and Development

R&D - Research & Development

S - Students

TUL - Lodz University of Technology

UA – University of Aveiro

UAH – University of Alcalá

YEI - Youth Employment Initiative

## 1. Introduction

The project #EuropeHome (#EH) 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 project #EH 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 Alcalá (Spain) – as the main project coordinator;
- University of Aveiro (Portugal);
- University of Latvia (Latvia);
- Aristotle 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 four 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, and merge 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 allows 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 needs analysis work are:**

- Needs analysis report/summary based on the surveys conducted and needs identified, therefore, setting the basis for the priority areas of the project materials and activities.
- Learning material: Draft version delivered prior to the Intensive Programme 1 (summer school) and final version to be presented to the consortium during the annual Consortium Meeting 2.
- Increased awareness about the entrepreneurial skills among project partners and stakeholders.

The key activities expected for the needs analysis are:

- To summarize the collected data through previously designed questionnaires that were distributed to the project partners and then applied to the intended target audience: students, academic staff and employers;
- To add general literature (available statistics) reviews on the topic concerned.

The present report is structured as follows. After this introduction, in Chapter 2 is presented the characterisation of education system, employability of graduates, entrepreneurship of each one of the five countries and partner's universities. Chapter 3 addresses the importance of student employability and the need to increase the relevance of education in the current European context based on European statistics and literature review. Chapter 4 presents the needs analysis results and discussion. The chapter 5 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 6 concludes.

## 2. Characterisation of Education System, Employability of Graduates, Entrepreneurship: Country and University

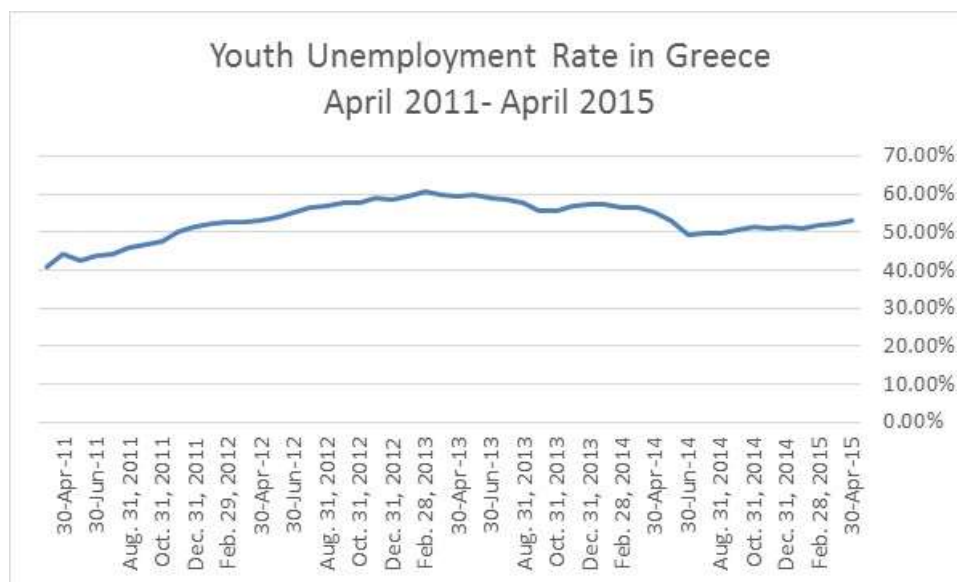
### 2.1. Greece – Aristotle University of Thessaloniki

by Stella Koustoupoulou and Grigoris Zarotiadis

#### 2.1.1. Greece

Greece experienced in the last decades a gradually worsening in the employability of academic graduates. Despite the weaknesses of the domestic labour market and the lacking effectiveness of job creation given a consumption based growth model, the main reason behind this was on the labour supply side: due to an almost complete absent post-secondary system for vocational education and the correspondingly hypertrophic tertiary, university education, students' employability weakened both in quantitative and qualitative terms. Higher rates of unemployment and of economically inactive people, longer periods before getting a first job in an area that relates to their specialties and flexible working places characterize the perspectives of graduates.

Currently, the situation became even more difficult. Given the severe consequences of the domestic downturn, synchronized with the global systemic crisis, unemployment, especially for young people, exploded in the last years reaching numbers far above of any thinkable alerting levels.



Source: Eurostat – EU Labour Force Survey

The skills mismatching is a deeper lying inconsistency with immediate, severe, structural consequences with respect to the functioning of labour market and the unemployment.

It is possible distinguish two different and subsequent phases where the mismatching of personal skills and demanded skills is generated:

- First, the so-called “pre-matching mismatch”: starting already from the schooling period, pupils’ choices do not respond to the perspectives of the (local) economy and the needs for specific vocational abilities and talents. There are two reasons for “pre-matching mismatch”. On the one hand, the lack of a sufficient bundle of services and “information gates” that could help the youth of the region to recognise their special inclinations and interests and to match them efficiently with the country- and region-specific employment prospects. On the other hand, even if one assumes that the pupils succeed in discovering the appropriate vocational direction, the existing discontinuities in the schooling system of the country generates insuperable obstacles especially for the vocational education of those who (could) decide to follow a more practical track.
- Second, the failures in the functioning of the labor market itself, which create mismatching, not because of a lack in specific, well-demanded skills and professional expertise, but due to the inability of bringing interested employees and employers together.

### **2.1.2. University of Thessaloniki**

The Department of Economics at the Aristotle University of Thessaloniki recognized the above inefficiencies and started an initiative in close coordination with the municipality of Thessaloniki to create a local observatory for vocational orientation. The scope of this observatory is to collect necessary data and information in order to publish periodically reports that reveal the prospects of specific branches and specializations in the wider area of Thessaloniki. The beneficiaries of the initiative are schoolboys and –girls that are about to discover their inclinations and their chances, but also those who contribute in a direct or indirect way to the vocational orientation of the youth – teachers, consultants, even parents and friends.

Part of the project for setting up the mentioned observatory was a pilot survey of pupils in the area focusing on their experiences from the school, the services of vocational orientation and their views for their vocational future, along with an extensive literature review for the prospects of specific branches and professions in Thessaloniki. The main findings are:

- Vocational orientation is mainly formed by the family, the school and the friends. Formal and specialised services do not play the role they could / should.
- The majority of the sample prefers to start with vocational orientation in Gymnasium. Also they think that the creation of such an observatory will be useful.
- The respondents believe that scientific professions are (will be) of high importance in the future in the wider area of Thessaloniki. Specifically with respect to the scientific professions, gender is significant as schoolgirls show a much higher inclination than the boys.

- There are also significant behavioural differences appearing in relation to the specific area of the city where the respondent lives but also to the educational level of the parents.
- Specifically for Thessaloniki, the city can become a significant metropolis of regional, cross-national importance. A centre for sustainable development based upon the socioeconomic constitution of the population and the spatial, strategic positioning in the south-eastern Europe.
- Following a strategic plan for the development of the city in this direction opens new prospects for the following sectors and activities:
- Powerful Centre for the creation and communication of knowledge, based upon the existing universities and scientific institutions.
- R&D Hub of regional, cross-national importance.
- A commercial center for transit trade.
- Finally a central hub of culture, creativity and specialised touristic activities, utilizing the existing infra-structure in the urban environment.

In order to have a holistic view of the area with respect to the skills requested and the matching issues, next to the above deductions one may consider the findings reported in a feasibility study for the usefulness and the appropriateness of reforms in the system of vocational education for the region of Central Macedonia.

Industry in the region of Central Macedonia has many problems to tackle. The area is suffering from industrial decline. Nevertheless, there are still a few areas of production which show some potential (such as the foodstuffs sector).

Among the numerous problems affecting industry are the decline in investment and the low proportion of knowledge-based production processes. Added to this is the dominance of SMEs which minimizes the economy's opportunities to engage in mass production. Consequently, the presence of companies whose prices are uncompetitive means that the economy is condemned to weak exports.

Most of the companies that were visited had survived the crisis thanks to the decline in competition and to exports, as well as their solid financial situation and innovative character.

The high geomorphologic, social, cultural and ethnic variety that distinguishes the region of Central Macedonia also constitutes a resource for concentrating on specialized services and high-quality products.

Consequently, it is absolutely essential to develop a modern, cooperative approach and to establish networks. For instance, the following products could be manufactured for export: beverages and foodstuffs, special end products with high quality integration (furniture, construction materials, garments, small and medium-sized machinery), metal products and specialty products with direct links to large industrial units (i.e. the automobile industry).

Further improvements to competitiveness based on quality production, and not simply on cutting costs, could be achieved by establishing extensive networks that

include the vocational training system and the regional labour market in the form of targeted vocational and further training.

As for the special perspectives of the graduates from the Aristotle University of Thessaloniki, a study conducted by the responsible authorities of the Institution in 2005-06 (published in 2011) led to the following conclusions:

- The vast majority of the students graduated from departments that were in their first priority, are satisfied with both the content of their studies and the relevant perspectives in the labour market.
- For those being involved in post-graduate studies, the majority had already some practical, vocational experience in working places that related to their thematic speciality.
- 19.2% of the graduates were unemployed (in 2005-06), which, despite of being better than analogue figures from other universities of the country, it still reveals the mentioned structural deficiencies.
- A significant share of the graduates starts from the private sector to end up being public servants later.
- Job search duration was, already in that period, relative long – one out of three had to search for longer than a year in order to find job.
- Another way of looking at this is the fact that two out of three unemployed graduates search for a job for almost a year, revealing thereby the problem of longer lasting unemployment. <sup>1</sup>

Going into a more detailed analysis of the region of Central Macedonia, the percentages of employed population is just above the national average, but lower than the Lisbon Strategy of 70%. Due to the crisis, the number of people in employment has fallen continuously since 2008, from 764.257 to 614.825 employees in 2012. According to regional data supplied by the National Statistics Service of Greece, unemployment rates in the administrative region of Central Macedonia during the fourth quarter of 2012 stood at 27.9%, putting this region in the second place in Greece.

Starting from an already high rate of youth unemployment being more than 20% in the first decade of the new millennium, the numbers exploded up to 60% in the first half of 2013 being then stabilised above 50% until the present.

The combination of the above described structural inefficiencies – a model of growth of weak job creation, the lacks in vocational schooling and the hypertrophic tertiary education – along with the current implications from the persistence of aggressive austerity, resulted into extreme consequences for the employability of our students as well. This generated a situation that is even more severe than the one reported in the above mentioned study of 2005-06.

Therefore, given the relevant conclusions from the study *Erasmus Impact Study*<sup>2</sup> that confirms a positive impact of ERASMUS projects on the employability of students, the #EuropeHome project is of significant importance for the Aristotle University of

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<sup>1</sup> For more details look in the following link: [https://dasta.auth.gr/uploaded\\_files/635342858626981644.pdf](https://dasta.auth.gr/uploaded_files/635342858626981644.pdf)

<sup>2</sup> in [http://europa.eu/rapid/press-release\\_IP-14-1025\\_en.htm](http://europa.eu/rapid/press-release_IP-14-1025_en.htm)

Thessaloniki. Moreover, as the current deadlocks in the domestic labour market do limit the positive effects, graduates entrepreneurship is of distinguished significance, both, for dealing with the problems of youth employability, as well as for contributing to a sustainable reconstruction of domestic production.

The mission of the Innovation and Entrepreneurship Unit (IEU) of the Aristotle University of Thessaloniki is to cultivate and reinforce students' positive attitudes towards undertaking innovative entrepreneurship initiatives, enhance their entrepreneurial knowledge and skills, and bring them in contact with the real entrepreneurial world.

The IEU aims to support the curriculum of 19 Departments of the Aristotle University of Thessaloniki with courses on entrepreneurship and actions which reinforce a culture of entrepreneurship and innovation. Within this framework, it provides students with the opportunity to be introduced to the basic concepts of Innovation and Entrepreneurship, to be trained in the preparation of business plans, to participate in open actions (entrepreneurship meetings, workshops, visits to innovative enterprises, conferences), thus stimulating their entrepreneurial activities.

The offered entrepreneurship courses are organized in a cross-departmental way. In general, the course structure is the following:

- Seminar courses – 7 weeks. Seminar courses provide students with elementary knowledge on establishing, running, financing and managing a business. At the same time, they promote and reinforce positive attitudes towards undertaking innovative entrepreneurship initiatives.
- Workshops – 4 weeks. The workshops train students in the preparation of business plans, using business planning software, and in the development of their own virtual business. In addition, the programme connects students with the world of "business", offering them the opportunity to visit companies, to invite and discuss with businessmen active in their field of interest, to attend relevant entrepreneurship seminars and workshops, and finally to establish networks.
- Connecting students with the world of business. To achieve a connection with business reality, students have the opportunity to participate in company visits, hold discussions with business people in their field of interest, during a period of two weeks.

The course material is available at: <https://dasta.auth.gr/cmsitem.aspx?sid=4&id=178>

## 2.2. Latvia – University of Latvia

*by Kristine Zaksa and Agnese Rusakova*

One of the most important aims of civic and citizenship education in Latvia is promoting students' critical and independent thinking. The emphasis in the curriculum of civic and citizenship education for students is given to such topics as human rights and legal systems, whereas the emphasis is not that outspoken on topics such as understanding different cultural and ethnic groups and resolving conflicts.



According to the Entrepreneurship Survey of the EU25 (2008), the entrepreneurship in Latvia is characterised by the highest proportion of young entrepreneurs (i.e. those aged 30 or younger) in comparison with respondents from the other EU25 countries, Latvia's young respondents are most likely to be setting up or running their own business<sup>3</sup> as well.

In 2005, the newly registered company founders were mostly aged between 31 to 40 years. However, the situation has changed in the last five years and more and more youngsters started their own businesses. Thus in 2010, 35.14% of all newly registered companies were founded by people who at the time of registration were aged between 21 to 30 years<sup>4</sup>.

According to 2012 data the structural unemployment rate in Latvia was clearly above the EU average with a very low job vacancy rate<sup>5</sup>. The skills mismatches are particularly high, and characterised by an increasing trend between 2007 and 2010. As regards the qualification mismatch — as depicted by a 'proxy variable' such as the unemployment rate by highest level of education attained — 6.5%. Regarding intra-EU mobility rates by sending country – Latvia recorded one of the largest mobility rates within the 27 EU Member States.

The skills mismatch increased in the majority of the member states (Ireland, Lithuania, Spain, Sweden, Luxembourg, Finland, the United Kingdom, Denmark, Italy, France, Latvia, Portugal, Slovenia, Estonia, Netherlands, Greece and Austria) from 2007 to 2010. The increase was particularly strong in countries that suffered from major imbalances in the housing sector before the economic and financial crisis.

Unemployed people in Latvia, in 2010, were mostly low-qualified, having no profession (youngsters), having vocational education (45-60 years old), with tendency to become long-term unemployed, having inadequate skills (risk of structural unemployment). The average of unemployed people that is most likely to find job again and soon is aged between 25 to 30 years and with higher education and/or profession<sup>6</sup>.

Regarding the structure of employed people by groups of professions in Latvia (2010) the majority was employed people in professions that require middle level of qualification (46.1%), followed by the higher level of qualification (40.4%) and only 13.5% was employed in low level of qualification. The supply and demand on the labour market was bigger to people with education in social sciences, commerce and law.

Traditionally, the lowest unemployment rate in Latvia is from people holding higher education. In the end of 2010, only 6.1% of registered unemployed people hold a higher education degree, whereas 28.8% had only basic education or lower<sup>7</sup>. The number of employed people with higher education is lower than the number of employed people in professions requiring high qualification<sup>8</sup>, which means that there is a higher demand for people with higher education than there is supplied.

<sup>3</sup> Entrepreneurship Survey of the EU25, 2008, in [http://ec.europa.eu/enterprise/policies/sme/files/survey/static2008/latvia\\_static\\_en.pdf](http://ec.europa.eu/enterprise/policies/sme/files/survey/static2008/latvia_static_en.pdf)

<sup>4</sup> Uzņēmumu reģistrs, Republic of Latvia, in [www.lursoft.lv](http://www.lursoft.lv)

<sup>5</sup> SKILLS MISMATCHES AND LABOUR MOBILITY, in [http://ec.europa.eu/europe2020/pdf/themes/27\\_skills\\_gaps\\_and\\_labour\\_mobility.pdf](http://ec.europa.eu/europe2020/pdf/themes/27_skills_gaps_and_labour_mobility.pdf)

<sup>6</sup> State Employment Agency, analysis "Bezdarbnieku sastāva analīze", 2011, in [http://www.nva.gov.lv/docs/17\\_4d89a27b27f4e5.46501831.doc](http://www.nva.gov.lv/docs/17_4d89a27b27f4e5.46501831.doc)

<sup>7</sup> State Employment Agency, 2012, [http://www.nva.lv/index.php?cid=6#merka\\_grupas](http://www.nva.lv/index.php?cid=6#merka_grupas)

<sup>8</sup> Central Statistical Bureau, Republic of Latvia, <http://www.csb.gov.lv/notikumi/jaunaka-informacija-datubazes-1903-23032012-34501.html>

However, some of the people having higher education are employed in jobs requiring middle level qualification. The supply of people having secondary school education is higher than the demand for professions of middle level qualification. Similar tendency is observable throughout the economy - the people with higher level of education are working in jobs requiring lower level of qualification. Due to the crisis 2008-2010 the number of employed people in jobs of higher qualification decreased 16%, however only 2.8% of people with higher education lost their job, vs. 30.7% of people with secondary education<sup>9</sup>. This means that the disparity of profession and education are essential factors for the employers decide who should be fired. Since the beginning of nineties, the unemployment among low-qualified people has increased compared to the unemployment rate among the highly-qualified people<sup>10</sup>.

In the end of 2010 the ratio of people in the age group 15-24 was 14.3%, making the youth second largest target group for national measures to foster employability. The largest target group is the long-term unemployed people – 37.0%. Among the long-term unemployed people the largest group holds vocational education - 38.5%, the smallest holds higher education - 11.7%. Finally, 7.6% of long-term unemployed was aged 15-24.

There were 13.3% young early school leavers in Latvia in 2010, according to Eurostat data<sup>11</sup>. The early school leavers (same as young people not in education not in employment) is in the same target group of young people aged between 15 to 24 years and is rarely treated isolated from this group. Nevertheless, a wide range of services are available for this population category within the general education and employment programs and specific youth-oriented programs.

According to Cedefop (2010) analysis<sup>12</sup> using the European Working Conditions Survey (2005), in Latvia approximately 1.73% of the workforce (EU15 average - 1.68%) was undereducated and under-skilled. On the other hand, 2.54% (EU15 average - 6%) was over-educated and over-skilled. This survey placed Latvia in the relatively highly matched group, with 44.24 % of respondents matched for both education and skills, next to 19 other countries such as Belgium, Denmark, Norway, Estonia, etc.

Regarding to the State employment agency's survey (2014)<sup>13</sup> about 18.5% of employers has lack of employees. 68% of them need highly qualified employees, 14.3% – employees without any qualification and 7.9% need low qualified employees. The highly qualified employees are more required in Riga (87%) and in suburbs of Riga (70%), whereas in western part of Latvia (Kurzeme) and in eastern part of Latvia (Latgale) more low qualified employees are required – accordingly 28.6% and 27.3%.

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<sup>9</sup> Ministry of Welfare, Republic of Latvia, report „Informatīvais ziņojums par prognozēm darbaspēka pieprasījuma un piedāvājuma atbilstībai vidējā termiņā”, 2011,

[http://www.lm.gov.lv/upload/darba\\_tirgus/darba\\_tirgus/emzino\\_130611.pdf](http://www.lm.gov.lv/upload/darba_tirgus/darba_tirgus/emzino_130611.pdf)

<sup>10</sup> Free Trade Union Confederation of Latvia, report „Mazkvalificēta darbaspēka prasību paaugstināšanas iespējas”, 2010, [http://www.lbas.lv/upload/stuff/201101/lbas\\_expert\\_mazkvalific\\_prasmes\\_30122010.pdf](http://www.lbas.lv/upload/stuff/201101/lbas_expert_mazkvalific_prasmes_30122010.pdf)

<sup>11</sup> EUROSTAT data, 2009, in

<http://epp.eurostat.ec.europa.eu/tgm/table.do?tab=table&init=1&plugin=1&language=en&pcode=tsisc060>

<sup>12</sup> CEDEFOP (2010). “The Right Skills for Silver Workers: an empirical analysis”, retrieved in 20 April 2015, from <http://www.esri.ie/UserFiles/publications/jacb201066/BKMNEXT181.pdf>

<sup>13</sup> State employment agency's survey (2014), “Darba tirgus specifisko reģionālo problēmu identificēšana un pasākumu izstrādāšana reģionālā darba tirgus konkurētspējas stiprināšanai” retrieved in 20 April 2015 from [http://www.nva.gov.lv/docs/28\\_53abbd7c02ee19.16060069.pdf](http://www.nva.gov.lv/docs/28_53abbd7c02ee19.16060069.pdf)

The top 5 skills required by employers are: discipline, professional skills and knowledge, skills to work individually and in teams as well as communication skills and readiness to overtake new duties on the working place. The experience is also required – by about 85% employers, whereas the computer skills are required only by 49% employers and the foreign language skills only by 45%<sup>14</sup>.

When asked to evaluate the skills and competencies of their employees, the employers agreed that the top 5 best skills were: Latvian language skills, discipline, skills to work individually and in teams, professional skills and knowledge and Russian language skills, whereas computer skills as good were mentioned only by 49% of the employers and the foreign language skills only by 45%.<sup>15</sup>

Concerning the preventive actions to avoid the skills mismatches, the High Education Institutions (HEIs) in Latvia are working on long-term relationships with employers to provide feedback on such graduates skills e.g. adaptability to fast changing working environment.

Despite of the share of higher education graduates who seeks for a job is twice or three times lower than the number of job seekers with the next lower level of education<sup>16</sup>, the government nourishes the opinion, that many of the problems on the labour market are to be rooted back to quality problems in education and higher education inter alia.

At the same time many of the indirect reprimands are rather systemic failures of the state, not specifically to be prevented by the higher education sector alone, for example, with regards to labour market needs - lack of long-term development vision by the government that would be followed up by consequent actions towards reaching the aims set in different policies planning documents. This lack is combined with the fact, that the majority<sup>17</sup> of the study places in Latvia's HEIs are privately funded and, therefore, the state has a minimum to say in the matter of what students choose to study.

The apparent lack of quality carrier education of the prospective students that tend to idealize the future job positions, has led to new forms of collaboration – several institutions run short-term projects where pupils and even their parents may experience both studies of the field and field aligned company excursions, enhancing their understanding of the skills prerequisites in each profession and foresee future responsibilities (for example the local company “Prakse.lv” developed an internet portal [ww.prakse.lv](http://ww.prakse.lv), which is a platform where employers and students can meet each other; students, particularly, can get more information about job specifications in companies and get an internships).

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<sup>14</sup> Idem.

<sup>15</sup> Idem.

<sup>16</sup> See data from Central Statistical Bureau in [www.csb.gov.lv](http://www.csb.gov.lv)

<sup>17</sup> 67% of non-matriculated students in 2012 were covering the tuition fee through private funds, see Report on Higher Education Statistics (2012), Ministry of Education and Science of Latvia, in [izm.izm.gov.lv/upload\\_file/lzgliitiba/Augstaka\\_izgliitiba/Statistika/Parskats\\_2012.pdf](http://izm.izm.gov.lv/upload_file/lzgliitiba/Augstaka_izgliitiba/Statistika/Parskats_2012.pdf)

### 2.2.1. Entrepreneurial education at Latvia

The objectives and major constituent parts of the programmes in Latvia are defined and reconsidered in collaboration with employers and alumni, but the scope to what this is successful largely depends on the type of institution and the direction of the study programme. In smaller institutions this is done jointly with the top management while large institutions are more decentralized and the contacts with employers are maintained by deans or heads of departments. The closest link with employers is in regulated professions; e.g. the Latvian Maritime Administration (that is representative of the profession) is closely involved in monitoring all developments in Latvian Maritime Academy and the learning outcomes have to be aligned to internationally establish professional standards. In regional universities cooperation with employers is done together with regional authorities and management of all levels is involved, depending on the issues that are developed or evaluated. In private institutions there is an emphasis on specific agreements with employers' associations e.g. tourism or hotel businesses. For teacher training programmes, links are developed and maintained with teacher associations (especially in HEIs placed in the capital city) or with particular schools (in regions). A little more complicated is the situation of social sciences and humanities where usually the employment is rather scattered among many employers and there are no specifically oriented employers' representatives. The activities in universities or in institutions not always are known by the National authorities which are dealing just with representatives of employers of the National level such as Chambers of trade and industry or Confederation of employers; hence there is a widespread opinion that HEIs do not involve sufficiently the stakeholders and do not do their utmost to keep the study programmes in line with the labour market needs (Prikulis, Rusakova & Rauhvargers, 2014).

The majority of the Master students work and study simultaneously. This is a good solution in difficult financial situations both for students and institutions.

The study environment is not contradictory to the early involvement of students in labour market; on the contrary – the study environment in Latvia promotes the development of early employability through, for example, offering postgraduate level studies at evening hours and services like informing the students in advance through mobile messages about anticipated changes in lecture hours.

With Latvia being among the countries with no substantial capital reserves, students have to finance themselves their studies. Therefore, as was mentioned above, some of the part-time students are adults that are working during the week and studying on weekends; as expected this trend may vary according to the studies field.

From one side the quality of higher education may suffer through many students that are combining their studies with full-time jobs, but from the other side the beneficial impact of professional competence is undeniable, as the students enrich the study environment interactively with examples from their job experiences and in general – develop the necessary competences for the labour market. Such students are also clearer about what they expect from the studies and more motivated to study in general.

Acknowledging the entrepreneurial culture that has become a part of the organizational culture of HEIs through liberation of higher education sector, and recognizing the role of the universities as important employers in the region, UR has

become an active member in the regional employers union. This creates for the HEI not only imperceptible benefits – such as an additional communication platform and an internal view on the stakeholders' opinions on quality issues, but also practical benefits for the quality of study process as well as better prospects for students' practical placements.

Re-discovering its competence of being an employer and not just another teaching institution, HEI starts generating ideas to employ its own students in short-term projects in order to – draw conclusions on their professional competence, and promote the development of such competences.

Other type of outgoing involvement is through delegate institutional representatives to participate in stakeholder's decision procedures. This is not a typical top-down communication with HEI being the mediator among two different stakeholder groups. Such outgoing involvement allows creating stakeholder clusters for direct cross-exchange of opinions and allows improving visibility of the stakeholder's interests which HEI represents.

Several HEI (both public and private) in Latvia have also business incubators, where students from different study fields can establish their start-ups. Currently, business incubators are available at University of Latvia, Riga Technical University, BA School of Business and Finance, Riga Stockholm school of Economics, Riga International School of Economics and Business Administration, Turība University, Rezekne University, Ventspils University College, Latvia University of Agriculture. HEI usually provides also different study courses, mentors, seminars and other support to foster the development of students' start-ups.

## 2.2.2. University of Latvia

*by Kristine Zaksa, Agnese Rusakova and Dace Svilane*

### **Brief overview of student employability**

The employability of graduates is not regularly researched. The accreditation process foresees the graduate's survey, also on the aspects of their employability, however the rate of answers is not very high. The labour market situation of recent graduates is at large examined on an ad hoc basis. Basically the graduate tracking is done through different sources e.g. alumni relations. The data collection through indirect means provide more genuine data at the moment. To mention an example of indirect (no direct involvement of alumni relations for data collection) graduate tracking - several largest universities (e.g. University of Latvia, Riga Technical University) submit upon graduation the data cohort on graduates to the State Revenue Service and receive in return the percentage of graduates that are employed legally within the country. This provides a partial picture on what the employment level of the graduates is, however, with the development of alumni network being one of the tasks on the agenda, it is expected, that both approaches will soon support each other. There are several higher education institutions that are quite successful in using the alumni relations and the relationships with alumni are a part of organizational culture from several decades ago, e.g. Riga Graduate School of Law, Stockholm School of Economics in Riga, Riga Business School.

With respect to the labour market relevance of degrees there are some ad hoc researches conducted. Following conclusions were drawn from a study in 2007<sup>18</sup>: the higher the level of education the higher the possibility of work within the studies field; this is, among graduates of tertiary education, 73% of graduates work in their field of studies, whereas in graduates of vocational education this only happens to 57% of the individuals. In addition, the higher the level of studies that graduates are currently studying more likely is to find a job even before finishing their studies.

Ministry of Economics and State Employment Agency are responsible for labour market predictions. The Guidelines for Education Development 2014 – 2020 plan to restructure the higher education system, managing the number of students in certain study fields according to the job market needs.

### **Entrepreneurial education at University of Latvia**

The University of Latvia (UL) with its 14,000 students, 13 faculties and more than 20 research institutes is the largest research university in the Baltic States. The UL pursues the Vision of being one of the drivers of the national economy and is also engaged at a regional level. The regional importance of the UL is underlined by the fact that almost 20% of all students in Latvia are students of the University of Latvia. More than 75% of the graduates work in the region. Indeed, to increase the employability of UL students, the development of soft, transferable and transversal skills has been long an integrative part of the study curricula. In addition, different measures that promote the initiatives of young people (e.g. business incubator, start-up idea funding competitions), are part of an internal quality culture of the university.

With employability of the students being one of the quality cornerstones of the study process, the UL organizes at least 300 events with employers on campus each year. The close cooperation with local employers result in the fact that 98% of all internships are taking place in the region and about 93% off all graduates at the moment of graduation are already employed (with 97% of all Doctoral level students being employed). Out of considerations rooted in social responsibility values, the UL offers several support schemas for young people from disadvantaged backgrounds. The research for pan-European best practice that would help to overcome the local problems of increasing employability skills of disadvantaged youth corresponds to the policy agenda of the UL.

The Strategic Plan of the UL 2010-2020 envisages tight involvement of students in mobility schemes, as this contributes both to the study excellence experience of students and improves subsequently the student employability. Within the strategic policy documents of the University mobility is also regarded as an utmost tool for raising staff Academic qualification. Almost 4 % of UL's student consists of international students and the high internationalisation achievements of the university at an international scale have been especially earmarked by the *Multirank* ranking, which determines them as being "above average".

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<sup>18</sup> Ministry of Education and Science, Republic of Latvia, 2007, [http://izm.izm.gov.lv/upload\\_file/jaunatne/petijumi/avgst\\_prof\\_nodarbinatiba.pdf](http://izm.izm.gov.lv/upload_file/jaunatne/petijumi/avgst_prof_nodarbinatiba.pdf)

## 2.3. Poland – Lodz University of Technology

by Agnieszka Michalowska-Dutkiewicz and Iwona Staniec

### 2.3.1. Poland

The educational system in Poland requires changes which can be achieved by increasing the level of education. It is sometimes unsatisfactory level easily seen taking into consideration the big differences in the results obtained by the students and pupils from the different schools, and the skills mismatches as far as job demand and supply are concerned.

The adjustment of the system of education to the needs of labor market can happen by means of: increasing the quality of education, creating a system of adjusting the education to the needs of labor market, a development of the system of trainings which allow obtaining relevant qualifications and making e-learning and telework widely available. The adjustment of the qualifications to the labor market depends on the changes in the structure and number of people, and in internal and external migrations. It is foreseen that many young and educated people will leave Poland and Poland will have a lot of immigrants coming from Eastern countries.

The majority of employers in Poland think that it is very difficult to find on the labor market the employees with the right qualifications. This opinion is expressed in the majority of cases by the representatives of the private companies (71%), in case of public institutions this threshold is 50%. The highest difficulties finding employees are encountered by the companies from the civil engineering field.

The research conducted by Hudson Job Index<sup>19</sup> among two hundred Polish and foreign companies operating in Poland showed that the highest increase of employment is forecast<sup>20</sup>:

- in construction industry - 13%;
- in departments related with sale (13% of answers);
- in departments related with production (8% of answers);
- in IT and telecommunication sector - 7% of answers;
- in client service, marketing, logistics and administration the forecast increase of employment is from 3% to 4.5%;
- in the production industry the growth of 1.37% is possible.

According to the Job Index Survey "Labor market for graduates 2013", another research on the situation of labor market in Poland, 59% of the companies do not intend to employ graduates or students of the last years. In the majority of cases it results directly from the policy on employing new staff, e.g. these companies tend to employ only experienced specialists, not depending from the company's situation nor its recruitment plans. The report "Labor market of specialists in the first quarter of

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<sup>19</sup> Hudson Job Index is a market research conducted every three months by the Hudson Company among the Polish and international companies operating on the Polish markets. The research is based on a conviction that the plans concerning the growth or reduction of employment made by the personal departments can be seen as an indicator of the employers' optimism concerning their further growth. The main aim of the research is to foresee the climate of the Polish economy and to define prosperity on the labor market in the given quarter. The forecast refers to the demand for specialists in the different fields in the different parts of Poland.

<sup>20</sup> Hudson Job Index research in 2012, 2013, 2014.

2014"<sup>21</sup> based on 22 000 job offers for candidates with higher education degree shows that 15% of all the job offers were directed to specialists in trade. In the opinion of the analytics "engineers are the second group of graduates most likely to find employment following the specialists in sales".

As far as the number of offers is concerned, the following branches are enumerated: light industry, construction industry, properties, banking, finances and insurance. Foreign employers are also more and more interested in Polish employees. It must be noticed that one fourth of job advertisement which appear on this portal come from abroad. It is the same in case of *Gazeta Wyborcza* (a daily newspaper in Poland) which in its part dedicated to job advertisements has more and more job advertisements from abroad.

In Poland many research have been conducted on the employers' expectations towards the competencies of graduates. Their results allow creating a hierarchy of the importance of the features for an ideal graduate on the labor market. By comparing the research results it is possible to conclude that most of it agrees that experience and knowledge are very important in assessing candidates and are also the common employment factors.

In the group of the common features there were also such soft skills as: loyalty, independence, ability to adjust and the personality of the candidate. However, the research results has evaluated in time.

The report "Young people on the labor market" <sup>22</sup> (in Polish), done in 2014, concludes that the majority of employers think that the graduates of higher education institutions are completely unprepared to the functions on the labor market and for this reason are simply not employed.

The report prepared by Deloitte, in 2013,<sup>23</sup> presents the skills which will be required from employees:

- Ability to analyze and solve problems where the machines and electronics fail;
- Social and emotional intelligence;
- New, creative thinking- proficiency in solving the appearing problems;
- Capacity to work in a multicultural environment;
- Capacity to be able to use critically new media;
- Ability to understand the notions coming from many disciplines;
- Project thinking;
- Ability to filter important data;
- Ability to cooperate in the virtual team.

The report of Polish Agency for Enterprise Development<sup>24</sup> on the cooperation between business and education in Poland shows that young people wrongly perceive the requirements of skills required by employers. Students think that soft skills are the least important requirements whereas in the reality it is the opposite. Only 3.5% of students think that skills to communicate and to work in the team are

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<sup>21</sup> In [www.pracuj.pl](http://www.pracuj.pl) (if the name is translated directly it means work.pl)

<sup>22</sup>The report presents the situation of young people on the labor market from the perspective of small and medium-sized companies. Data for the end of August 2014.

<sup>23</sup>The report *Pierwsze kroki na rynku pracy. Międzynarodowe badanie studentów i absolwentów*, Deloitte, April 2013.

<sup>24</sup>*Raport specjalny PARP opracowany w ramach projektu Biznes dla edukacji*, [http://biznesdlaedukacji.parp.gov.pl/images/pdf/Raport\\_parp.pdf](http://biznesdlaedukacji.parp.gov.pl/images/pdf/Raport_parp.pdf) [14.04.2015].



important for a new employee. 3% of young people consider an ability to take decisions as important and only 5.5 % consider as important the ability to analyze and draw conclusions. The data included in this Report of employers research show that the companies observe among the candidates a deficit of such skills as:

- A contact with clients (34%);
- Ability to solve problems (32%);
- Interpersonal skills (24%);
- Ability to work in group (22%).

Table 2.3.1.1. Poland: The most important competencies of graduates in the light of research

Survey among the members of the Association of Employers of Lower Silesia (2006) <sup>25</sup>	Surveys conducted among the employers chosen at random in a group of 2500 employers in the region of Wielkopolska (2006) <sup>26</sup>	„Labour market and human resources in Lodz and in its region” (in Polish) (2010) <sup>27</sup>	Educational programme ZainSTA Luj się, report of the III edition, academic year 2010/2011, p. 26	Research conducted in 80 big companies from the whole Poland (2012) <sup>28</sup>
Field knowledge	Experience and practical knowledge in the given profession	Knowledge of at least two foreign languages	Ability to apply knowledge in practice	Ability to use a computer
Independence in taking decisions	Engagement, initiatives, creativity, activity	Ability to use a computer	Current professional experience	Knowledge of at least two foreign languages
Eagerness to improve qualifications	Communicativeness, ability to work in the group	Experiences (trainings, placements)	Field knowledge	Good organization and independence
Professional experience	Proper education	Theoretical knowledge	Good knowledge of at least two foreign languages	Creativity
Availability	Adjustment to the executed job	Experience in team work	High reputation of the University from which the person graduated	Availability
Ability to cooperate	Availability	Readiness for mobility	Additional qualification	Experience (work placements)
Loyalty towards an employer	Obedience and reliability	Experience at working under stress	Ability to analyse and draw conclusions	Theoretical knowledge
Ability to organize work	Flexibility		Communication skills and eloquence	Experience in team work
Ability to create a good image of the company	Pugnacity and self-confidence		Ability to work in a team	Readiness for mobility
Ability to adjust	Systematic training, loyalty, honesty, diligence		Good results during studies	Experience at working under stress

Besides the global research, in Poland many local research are also conducted which provide the information on the needs of local labor markets.

In the region of Lodz, due to its specificity, many researches about local labor market are conducted. The research results of the research project “A Demand for Managerial and Engineering Staff in the Region of Lodz in the Years 2007-2015”,

<sup>25</sup> *Perspektywy zatrudnienia studentów*, Kampania Piwowarska, Warszawa 2006, p.p. 13 -20.

<sup>26</sup> Research conducted in 2006 roku by Wojewódzki Urząd Pracy w Poznaniu (Voivodeship Labour Market in Poznań).

<sup>27</sup> *Raport z badań 2010 pt. „Rynek pracy i zasoby ludzkie w Łodzi i regionie”*, in [http://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&ved=0CB4QFjAA&url=http%3A%2F%2Fwww.invest.lodz.pl%2Fcms%2Fzalatczony\\_pliki%2FRynek\\_pracy\\_2010.pdf&ei=C0EtVa2LFyzcaP-jgYAE&usg=AFQjCNHjN7ML87VcMYVvmwNi8ChAT-7zVw&bvm=bv.90790515,d.d2s](http://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&ved=0CB4QFjAA&url=http%3A%2F%2Fwww.invest.lodz.pl%2Fcms%2Fzalatczony_pliki%2FRynek_pracy_2010.pdf&ei=C0EtVa2LFyzcaP-jgYAE&usg=AFQjCNHjN7ML87VcMYVvmwNi8ChAT-7zVw&bvm=bv.90790515,d.d2s) [14.04.2015].

<sup>28</sup> The companies which employ at least 250 employees and which have had offers for at least two years for the graduates were examined.

supervised by Staniec I. (2008), show that the situation in the region is dependent mainly on:

- A demographic factor (aging of the inhabitants, low index of birth rate, long lifespan);
- A factor of activities and a generation balance - a low level of professional activity;
- A regional factor - a big scale of a regional diversity; a modernizing factor - a deficit of modernity in the economy;
- An educational fact - a clash between education and labor market;
- A factor of the adjustment of supply and demand.

In the research "*Lodz Voivodeship - a Diagnosis of Professions*" (in Polish) it was shown that the employment will decrease in many fields including construction and will increase in education. Among the employees with higher education qualification the following categories are sought: employees of libraries, museums, IT specialists, brokers of financial assets, tax and employment specialists. As far as the demand for the graduates with higher education degrees are concerned, it was showed that on the labour market in Lodz region there are many graduates of psychology and economics but the demand is increasing for the graduates of engineering studies<sup>29</sup>.

While analysing the data on the number of the unemployed registered in the Labour Offices of Lodz it must be noticed that the number of the unemployed with a higher education degree is relatively low. However, there are three professions where the graduates cannot find employment: economics (11.7% of graduates are unemployed), specialist of public administration (7.2%) and pedagogy (3.7% of graduates). From the point of view of the areas of company functioning, the deficit has been recently seen among the employees of:

- Traffic maintenance - in the opinion of sixteen companies - observing the situation on the roads in the region - unfortunately the schools were not educating specialists in this area, only in the academic year 2005/2006 Transport was launched as a field of study offered by TUL;
- Managers - in the opinion of eleven respondents;
- Purchase department - in the opinion of eight companies.

### **Brief overview of student employability at Poland**

In Poland the majority of HEIs started to monitor the careers of their graduates and their employability only after such duty was introduced by the Law on Higher Education in 2011 (Journal of Law, 2011 number 84 p. 455). However, this Law specifies neither the methodology which must be used nor the rules of making the results public. Now the amendments are being prepared which will ensure a creation of a central data base for such monitoring. Due to the fact that only a part of Polish

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<sup>29</sup> Witkowski Janusz (ed.): *Rynek pracy w województwie łódzkim. Specyfika i uwarunkowania. Raport końcowy z realizacji projektu: Diagnoza Zawodów realizowanego przez partnerstwo: ASM – Centrum Badań i Analiz Rynku Sp. z o. o., Instytut Pracy i Spraw Socjalnych w ramach Priorytetu 2 – Wzmocnienie rozwoju zasobów ludzkich w regionach, Zintegrowanego Programu operacyjnego Rozwoju Regionalnego 2004–2006*, Wydawnictwo ARTPRESS sp.j. Studio Grafiki Komputerowej – Drukarnia, Inowrocław 2006, ISBN 978-83-924409-5-6, pp. 291–292.

higher education institutions make public such research<sup>30</sup> and they all have different methodologies used it is very difficult to have general conclusions.

Employability of the students is a multi-aspect phenomenon and according to the conclusions of the Council of the European Union concerning the employability of the graduates it is understood in the research as: *"a combination of factors which allow a given person to go towards an employment, undertake it and maintain it as well as to develop the professional career - it is a complex notion, which embraces not only the features of a given person, their skills, attitudes or motivations but also external factors which go beyond education such as labour market regulations, demography, economy structure and a general economic situation"*.

According to the Law on Higher Education the analysis of the career of the graduates is supposed to show if graduates of every HEI work.

### **Employment rate**

Employment rate defines how useful the education is as it shows how the competencies obtained by the students during their studies allow the graduates to find a place on the labour market<sup>31</sup>. It is considered that the percentage of the graduates who find (a permanent) job after graduation is a valuable factor which shows how the universities make their graduates "employable"<sup>32</sup>.

Most of the available reports show that the employability of graduates depends on the field of study and on a social background (higher employment among people who are from the families where parents hold a degree). There are also many differences in gender.

The employability is also taken into consideration in Poland in the different rankings of HEI e.g. in the ranking *"Perspektywy"*, *"Rzeczpospolita"* or *"Newsweek"*. The data provided by the Local Labour Office in Lodz states that people with engineering or managerial background have hardly any difficulties while looking for a job. Furthermore, according to the data of Eurostat, Labour Force Survey (2012) the average level of employability among people aged 20-34 in Poland with a higher education degree is 13.4%.

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<sup>30</sup> In March 2015 the results were published on the website of the public universities such as: Warsaw University, Jagiellonian University, Nicolaus Copernicus University in Toruń, Cracow University of Technology, Warsaw University of Technology, AGH University of Science and Technology, Warsaw School of Economics, Economics University in Poznań; non-public higher education institutions- University of Information, Technology and Management in Rzeszów.

<sup>31</sup> Grudowski, P., & Lewandowski, K. (2012). *Pojęcie jakości kształcenia i uwarunkowania jej kwantyfikacji w uczelniach wyższych*, *Zarządzanie i Finanse*, nr 3, t. I, s. 397-406, [http://zif.wzr.pl/pim/2012\\_3\\_1\\_29.pdf](http://zif.wzr.pl/pim/2012_3_1_29.pdf) [04.04.2015].

<sup>32</sup> Bruwer, J. (1998). *First destination graduate employment as key performance indicator: outcomes assessment perspectives*, Unit for institutional planning and research, Cape Technikon.

Table 2.3.1.2. Employment factor, percentage of the unemployed and professionally inactive among people with higher education degree in Poland in 2008-2013.

Year	Employment factor	Percentage of the unemployed	Professionally passive	Number of respondents in thousands
2008	76.96%	3.06%	19.95%	4797
2009	77.34%	3.55%	19.14%	5235
2010	76.36%	3.99%	19.63%	5513
2011	75.84%	4.16%	20.00%	5771
2012	75.48%	4.47%	20.05%	6109
2013	75.59%	4.54%	19.88%	6403

Source: Polish Main Statistical Office.

Table 2.3.1.3. Forms of work among the graduates

Education	Graduates currently working			All graduates						
	N	Full time positions	Own business	N	Full time positions	Own business	Contract for a specific task %	Without contract %	Work placement %	Abroad %
1st cycle Degree	122	75	9	172	70	7	20	8	28	7
Engineer	61	82	23	69	84	29	7	4	14	0
Master	412	80	14	515	79	14	18	4	21	5

Source: Górnica (2012).

## 2.3.2. Lodz University of Technology

At Lodz University of Technology (TUL) once per semester take place meetings of employers, academic teachers and students in order to compare the expectations of employers with the expectations of students and a definition of gaps in the offered study programs are organized. It is a possibility to discuss the skills and competencies which in the future will decide about the position on the labor market. Lodz University of Technology feels a need to have a permanent dialogue with the employers and wants to have a platform to exchange opinions in order to optimize systems and the contents of teaching from the point of view of the current and future needs of the economy. The advantages which derive from it are obvious: the employees will expect from the graduates of higher education institutions a better preparation for work and the higher education institutions will increase their competitiveness on the labor market. These aspects are all implemented in the program "Young people in Lodz"<sup>33</sup>.

<sup>33</sup> In this programme, last year, the employers presented the following expectations during one of the last meetings:

- Anna Kardzasz-Jóźwicka from Lodz Regional Science and Technology Park spoke about a demand for the new employees connected with an opening of a new laboratory,
- Sebastian Rybarczyk from Lodz Special Economic Zone paid a particular attention to the negative impact of the closing of secondary vocational schools in Poland and a necessity to replace people with technician degree with the first cycle degree,
- Anna Roszkowska representing a Consulting Company HR Partners has underlined that the employees of engineering studies lack a skill to correctly prepare selection documents such as CVs and cover letters and to present them correctly during the selection process. According to the recruiting companies, managers cannot motivate their subordinates properly and encourage them to grasp new ideas,
- Marcin Węgierski - a representative of Lodz Agency of Regional Development stated that none, even the best university, does not fully guarantee a success on the labour market for its beneficiaries. The success also greatly

In the research "Demand for managers and engineers in the region of Lodz in the years 2007-2015"<sup>34</sup>, 259 of employers (51.85%) from the region stated that they do not face any problem attracting the right specialists. One hundred employers representing 20% of the sample had difficulties in attracting the right specialists. Some reasons can be enumerated:

- i) A lack of candidates (also graduates) of the requested study fields;
- ii) A bad preparation of graduates, 12% mentioned in the following fields of studies: Textile Engineering (cloths design), Sales and Marketing, Mining and Geology, a lack of education in the requested areas e.g. logistics, energy systems;
- iii) Other difficulties which were mentioned are as follows: a proposed low salary and high financial expectation of candidates, an exodus of good engineers abroad, a lack of engineers up to 40 years old, engineers with a few years of experience, people prepared to work as confectioners, experienced workers, and stone processors. The employers underline that it is important for the graduate to have experience in full time job (66.4% of answers) or other relevant experience in the form of placements (56.7% of respondents considered as necessary and vital). The employers consider other forms of activities such as volunteering or the engagement in the life of the different organizations either as indifferent - 76.9% of even not advisable - 6.6 %. In the conducted research<sup>35</sup> the employers have a low opinion on the graduates of LUT in the following aspects: knowledge on the disabled, quality management, ergonomics and legal norms, communication in foreign languages, conducting negotiations, ability to prepare a budget, prepare an estimate and a timetable, awareness of self-education.

The research results allowed preparing three groups of the field of studies at TUL:

Group 1: outstanding graduates - these are the graduates of Food Technology, Biotechnology, Biochemical Engineering, Civil Engineering, Management and Production Engineering. In the opinion of employers they have very good knowledge and very good soft skills,

Group 2: average graduates of Automatic Control and Robotics, Electrical Engineering, Power Engineering, Occupational Safety Engineering, Chemical Technology, Chemistry, Paper and Printing Technology and IT that have in the opinion of the employers good level of general knowledge but a low level of soft skills.

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depends on the student's choice of extra courses, ability to get skills and experience and a systematic cooperation with industry.

- Jerzy Urbański- Director of the Company Polska Woda Sp.z o.o. stated that the majority of engineers have jobs which require much lower qualifications e.g. dealing with technical problems which require technical secondary education. In his opinion managerial skills are also very important for engineers and they should be properly shaped.

<sup>34</sup> Staniec, I. (2008). (ed.) *Absolwenci studiów inżynierskich i menedżerskich na łódzkim rynku pracy*, Media Press 2008, Staniec I. (ed.), *Identification of factors affecting personnel demand* Politechnika Łódzka, Łódź.

<sup>35</sup> Staniec, I., & Martin, M. (2009). *The structure of the demand for the work force in the Lodz Region*, *Management* vol 13, No 1, p.p. 198-211; I. Staniec, J. Żółtowski *Dane symboliczne w klasyfikacji oczekiwań pracodawców wobec absolwentów kierunków inżynierskich i menedżerskich*, *Prace Naukowe Uniwersytetu Ekonomicznego we Wrocławiu Taksonomia* 16 NR 47, Wydawnictwo UE we Wrocławiu, Wrocław 2009, p.p. 231-239; I. Staniec A. Szmit, J. Żółtowski *Analiza kwalifikacji kadry inżynierskiej i menedżerskiej w regionie łódzkim na podstawie badania ankietowego*, *Prace Naukowe Uniwersytetu Ekonomicznego we Wrocławiu Taksonomia* 15 NR 7 (1207), Wydawnictwo UE we Wrocławiu, Wrocław 2008, p.p. 144-151; I. Staniec (ed.), *Monografie Politechniki Łódzkiej*, Łódź 2010.

Group 3: weak graduates - graduates of Chemical and Process Engineering, Environmental Engineering, Environment Protection, Textile Engineering, Mechanical Engineering, Materials Engineering have a medium reputation among the employers as far as the field knowledge is concerned, badly in terms of general knowledge and soft skills. It should be underlined that these fields of studies are generally chosen by the weakest graduates of secondary schools which are visible already during the admission procedure.

Comparing the obtained results with the study programs in this field of studies it was stated that: i) the study programs put in the first group include not only the subjects which are connected with a given field of study, but also the general ones which allow obtaining soft skills; ii) in the study programs which are placed in the second group there are all the subjects required by the study programs but there are not courses which allow obtaining soft skills; and iii) in the study programs which are placed in the third group, there are the general courses and specialty-related courses as well as the general courses required by education standards but there are no subjects which allow obtaining soft skills. These students usually have also the lowest average of marks. The students are the weakest ones.

The research results show that the employers have a good opinion on graduates taking into consideration the specific skills connected with a given field of knowledge and it means that the study programs prepare well in terms of field-related knowledge. Unfortunately, the employers expect also the knowledge which exceeds the educational standards. It is connected with the quickly changing conditions of the environment and a quick development of technology. Therefore, it is necessary to introduce into the study programs soft skills and personal skills such as: ability to communicate, creativity, availability, awareness of the need of education.<sup>36</sup>

### **Entrepreneurial education at the Lodz University of Technology (TUL)**

TUL is deeply convinced that special attention should be paid to the development of entrepreneurial skills and competences. They both contribute to a higher employability of graduates. New skills should be fostered by means of creative ways of teaching and learning. It is also necessary to include different study modes and by tightening the links with the industry. New skills should be fostered by means of creative ways of teaching and learning. It is also necessary to include different study modes and to tighten the links with the industry. Entrepreneurship plays an important role in placements. TUL conducts many individual and group projects which are the elements of the education in the field of entrepreneurship

The notion of entrepreneurship is fully in line with the key documents of TUL:

#### **i) The Strategy of the Development of TUL for the years 2008-2020:**

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<sup>36</sup> While analyzing the questionnaires filled in by the employers it is possible to draw a conclusion that they complain on the disappearance of a technical culture in the society which is visible e.g. in the fact that people do not read technical instructions attached to the different devices. They notice that there is a lot of demand for engineers. However, due to the fact that vocational secondary schools in Poland were closed, the engineers often do not deal with design or construction tasks as they have duties which can be done by people with secondary technical or vocational education.

- Study programs adjusted to the needs of labour market and knowledge-based economy;
- Effective mechanisms of the transfer of technology from TUL to economy.

## ii) Erasmus Policy Statement

- Development of work based study programs and internship based learning;
- Increasing diversity of qualifications profiles with focus on the balance of vocational and academic competences and skills adjusted to the present and future needs of the regional and global labour market and the society;
- Preparing graduates and young researchers for active participation in the European and global labour markets and international activities by developing:
  - Openness for future mobility as employee;
  - Readiness for international entrepreneurship;
  - Foreign language skills enabling undertaking professional tasks in international environment;
  - Awareness of cultural diversity and value of European citizenship;
- Shift towards learning centred system based on learning outcomes and validation of non-formal and informal learning;
- Implementation and development of new methods in learning (Problem Based Learning, Project Organized Learning, Research Based Learning).

## iii) Interdisciplinary School of Innovation

The main aim of the program is to arouse, support and develop academic entrepreneurship and to create new innovative solutions ready to be implemented on the market.

The activities undertaken in the framework of Interdisciplinary School of Innovation lead to a creation of new spin-offs which enable a pre-incubation of the undertakings with a considerable market potential.

Among the detailed aims of the program one can enumerate:

- A popularization of the science and cooperation between science and economy and a promotion of academic entrepreneurship;
- A popularization of the investment achievements and implementation of the scientific environment of TUL;
- Activities with an organization and training character aiming to create spin-off companies and supporting their activities also in finding ways of financing.

## iv) Student Scientific Circles<sup>37</sup> which aim is to promote entrepreneurship

With the main characteristics:

- be open to students, entrepreneurs;
- lectures are given to all the participants;
- participants are divided into groups which work on a proto type of something;
- the result is a spin-off;

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<sup>37</sup> Such as Enactus.

- the company is very often located in techno parks, in which there are preferential conditions for running business.

#### **v) Rector's Proxy for Academic Entrepreneurship**

Main duties:

- creation of the strategy of the development of academic entrepreneurship at TUL;
- organization of the incubator of entrepreneurship at TUL;
- education of student and PhD students in the field of entrepreneurship.

#### **vi) Courses on entrepreneurship for students**

Almost all the faculties offer courses on entrepreneurship for all the students, not only for the students of business.

#### **vii) Careers office**

It is a unit of central administration which helps students and graduates in searching work placements offers running a service: [www.biurokarier.p.lodz.pl](http://www.biurokarier.p.lodz.pl) in which every day 500 advertisements are active to all the registered students.

The staff of the Career Office organizes, regularly, workshops devoted to the issues of searching jobs, preparation for job interviews, assessment Centers, combating stress and other soft skills required by employers. The Office also employs a psychologist who conducts the tests of vocational skills, entrepreneurial skills and gives professional coaching.

The Office helps also each student and each graduate to set up an own company. During an individual meeting the help is offered: how to prepare a business plan, how to obtain a grant to start a company. They also provide legal assistance for future businessmen.

The Career Office organizes also the trainings conducted by the branch practitioners. This activity is called "Academy of Employers" and enables students and graduates of Lodz University of Technology to have a contact with potential employers and to realize how theoretical knowledge gained during studies will be used in the professional life.

Each year an event called "Labour Fair" is organized. The students and graduates can get to know the offer of more than 120 employers. This event is also supported by many side events such as workshops and trainings which are free of charge.

Since 2015 the Career Office has been participating in the project "Competencies for business - Support for the Students of Lodz University of Technology". It is financed with the support of European Social Fund. The aim of the project is to adjust the needs of 200 graduates of TUL to the needs of labour market including a project run entirely by the employers.

#### **viii) A special course on entrepreneurship for the beneficiaries of the project conducted on Design field of study**

For every of 30 students recruited for this field of study in the framework of the project finances by the Ministry of Science, a special training on entrepreneurship is organized.



It is a two-month course. Its aim is e.g. to boost the entrepreneurship of the students of Design and to help them materialize their own ideas for business. Those students have special professional tests and professional coaching. They receive special feedback on their skills, strengths and professional skills. It is really vital to have this information on the current labour market. The students obtain the information how to effectively search job, which competencies are needed during the selection process including the soft ones, how to prepare a self-presentation, how to behave during a job interview. Additionally each participant will have a career coaching.

### Follow-up of the professional career of the graduates of TUL

In June 2009, the TUL implemented an innovative, fully electronic System of the Follow Up of the Professional Career of the Graduates. This system was co-financed with the money from the European Social Fund. One of the aims was to examine the level of “employability” of the graduates and gathering their opinions on the level of education. The users of the system register in it while preparing for the defence of their diploma thesis as the system generates the documentation which must be submitted in the Dean's Office, while registering a graduate can decide whether to allow the participation in the follow up or not.

Table 2.3.2.1. The number of people participating in the follow up of the professional career

Year	2009	2010	2011	2012	2013	2014
First registration	387	659	1180	1683	2019	1825
After half a year	196	351	402	616	612	318
After one year	92	58	291	312	357	-
After three years	53	81	183	163	-	-

Table 2.3.2.2. Number of TUL graduates

Year	2009	2010	2011	2012	2013	2014
Number	3092	2624	3527	3255	2348	2395
Percentage of graduates participating in the follow up	13	25	33	52	86	76

TUL data shows that every year more and more students agree to participate in the research - at the beginning were 13% and now 76%. It is, indeed, a very satisfactory evolution. The questionnaires include both the questions on the type of employment, mobility, further education as well as questions on how the knowledge obtained during studies is useful in the professional life.

### Work after studies at Lodz University of Technology

The data from 2014 obtained from the questionnaires filled in by students and graduates of Lodz University of Technology (76% agreed to participate in the research) show that while preparing for the defence 44% work or has some job guaranteed (36 % of women and 57% of men). Half a year after studies this indicator is higher and it is 64% (58% of women, 74 % of men).

Table 2.3.2.3. Employment rate of the graduates of Lodz University of Technology (%)

Year	2009	2010	2011	2012	2013	2014
First registration	62	65	45	36	35	44
After half a year	79	74	60	61	60	64
After a year	86	76	61	56	69	-
After three years	91	94	88	88	-	-

The average employability rate for TUL in the years 2009-2014 was 46% just after the graduation, 66% half a year after, 69% one year later and up to 90% three years after the graduation. It shows a clear growing tendency.

The decrease of employability from 2009 until 2011 results from a switch to two-cycle studies. Since that moment 53% of graduates declared a willingness to continue education.

Those people who do not have jobs in the majority of cases declared that they are still learning or have problems finding jobs in their place of living (72%). While registering in the system, the majority of the respondents declared that they are ready to change their place of living if it is required by the job offer. It is interesting to note, that half a year after studies 53.54% of the graduates stay in Lodz and the majority of those who left before (63.53 %) come back.

Our graduates one year after a registration in the system work usually in the large companies employing more than 200 people (40.61 % of the respondents), have a contract for a specific period of time (39.45 %) on non-defined period of time (38.28%) and have executive positions (60.15%).

As far as the fact of having a job before the defence is concerned the differences between the Faculties can be noticed. The best situation is at the Faculty of Civil Engineering, Architecture and Environmental Engineering (61%), Mechanical Engineering (56.76 %), and Organization and Management (53.86). The following positions are taken by Faculty of Electrical, Electronic, Computer and Control Engineering (47.14) and Faculty of Process and Environmental Engineering (46.24%).

It results from the research that in the year 2014, 60% of the respondents declared that their job is in line with the field of education. The graduates declared that they are ready to accept the job offer even not in line with the profile of the education if the salary is high, if the job is interesting, if it provides a chance for a long career, or when they are not able to have any job in line with the profile of studies. 53.24% of people in this category declared that they want to continue their education. In the majority of the cases they choose CPD courses (Continuous Professional Development Courses) (54.93%) or PhD studies (26.17%).

Table 2.3.2.4. An indicator of the synergy between a job offer and education in the system of the follow-up of the graduates careers (%)

Year	2009	2010	2011	2012	2013	2014
First registration	38	40	42	46	54	60
Half a year after	48	48	53	60	59	63
After one year	53	45	49	64	61	-
After three years	42	49	59	65	-	-

As far as the faculties of Lodz University of Technology are concerned, the job in line with the studies profile is mainly the case of the students from the following faculties:

Faculty of Civil Engineering, Architecture and Environmental Engineering (89.24%), Faculty of Electrical, Electronic, Computer and Control Engineering (74.55%), Faculty of Mechanical Engineering (59.18%).

Table 2.3.2.5. Height of net salary reported in the system (salary in Zloty(PLN))

Year	2009	2010	2011	2012	2013	2014
First registration	2 260	2 310	2 420	2 520	2 560	2 660
After half a year	2 540	2 400	2 400	2 380	2 590	2 600
After a year	2 410	2 670	2 410	2 540	2 730	-
After three years	2 930	3 180	3 270	3 180	-	-
Minimum salary in Poland	955	985	1030	1112	1180	1240
Average salary in Poland	2220	2310	2435	2520	2610	2700

The majority of people who study at TUL pointed the perspective to obtain professional qualifications which would help them to get job. It is followed by reasons such as: skills/ interests, prestige of the University on the educational market and its legal form. The very same students, if they were to choose a university again, in the majority of cases would decide to study again at TUL (rather yes - 50%, definitely yes - 36%). 77.32% of students is satisfied with the study program, but only 66.86 % state that the studies have prepared them well for the future employment. The majority of students would increase the level of education, would include more practical courses together with trainings, projects related with the issues that can be found in industry, increase the number of hours devoted to learning foreign languages. They also expect more cooperation between the university and the business and a better promotion of graduates among the potential employers.

## 2.4. Portugal – University of Aveiro

*by Elisabeth Pereira, Niall Power and Madalena Vilas-Boas*

### 2.4.1. Portugal

#### Characterization of Portuguese Education System

The Portuguese educational system<sup>38</sup> comprises three levels: basic, secondary and higher education. Pre-school education is optional and is for children between the ages of 3 and the age of entering basic education. Basic Education is universal, compulsory and free of charge and comprises three cycles, the first cycle lasts for four years, the second lasts for two years and the third lasts for three years. Secondary education is compulsory and it comprises a 3 year cycle (or 18 years old).

Higher Education includes university and polytechnic education. University education is offered by public, private and cooperative university institutions and polytechnic education is offered by public, private and cooperative non-university institutions. Private higher education institutions must be subject to the previous recognition of the Minister of Education and Science.

<sup>38</sup> The National Academic Recognition Information Centre (NARIC) in each of the EU and EEA states and all the associated countries in Central and Eastern Europe and Cyprus, provides a standard characterization of the Education System of those states for use in Diploma Supplements and other coordinated official documents, in <http://www.dges.mctes.pt/DGES/pt/Reconhecimento/NARICENIC/Reconhecimento+Acad%C3%A9mico/Suplemento+ao+Diploma/>

Both university and polytechnic institutions confer degrees of bachelor and master. However, the Doctoral and the Pos-Doctoral degrees are only conferred by university institutions.

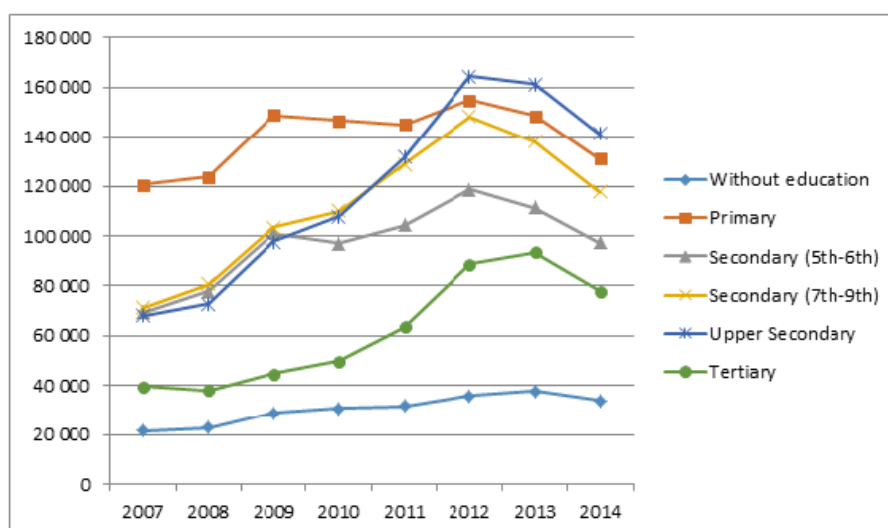
### **Employability of Graduates in Portugal**

The employability of graduates has become one of the central concerns of Portuguese Universities in recent years. Increasing pressure is being brought to bear on the HEI to adjust its study programme offering to labour market needs. For instance, the state funding for study programmes oblige demonstration of minimum levels of employability for Degree programmes and the Portuguese Higher Education Accreditation Agency (A3Es) requires data about employability as part of the accreditation procedure of degree programmes within the context of its appreciation of the quality of teaching and learning.

Pressure from society is equally being brought to bear on Universities: students, parents, politicians, the media and public opinion in Portugal now generally expect Universities to deliver degree programmes with a proven track record of employability. Regardless of questions that this trend could raise with regard to the historical and present role of higher education in society, Universities have taken it upon themselves to develop methodologies and construct models for the collection of data and the Portuguese Rectors' Conference (CRUP) has developed a coordinated approach to identify and systematise information about employability at different Universities, to compare strategies adopted by the different institutions and to create a reference guide that will make possible to generate accumulated and comparable data.

In December 2014 there were a total of 598 581 unemployed people in Portugal (INE, 2015). From this total, 77 730 people were graduated, what means that individuals with tertiary level of education just represent 13% of the national unemployment. This is equally true for the period of 2007 to 2014 as one can see in Figure 2.4.1 which illustrates the unemployment rates fluctuation according to the level of education. However, one should bear in mind that the number of adults (25-64 years-old) with tertiary education in Portugal is equally low; actually, Portugal is one of the three OECD countries with the lowest proportion of adults with tertiary education 17%, in contrast with the OECD average of 32%. Indeed, Portugal still presents low levels of education (data from 2011) since 65% of the adults (25-64 years-old) have less than the upper secondary level of education and 18% hold the upper secondary level (OECD, 2013).

In figure 2.4.1 is presented the number of graduated people unemployed which is the second lowest between the different levels of education and remained steady until the year of 2011 in which occurred a sharp increase of unemployment between graduates which recorded then a slight decrease in 2013. Data from OECD (2013) reinforce this illustration since the unemployment rate of graduates in 2011 was 8% and 10.9% for people with upper secondary education, therefore, the highest rate of unemployment between all levels of education.



Source: INE

Figure 2.4.1. Unemployed in Portugal according to the education level by year (average annual values)

According to the OECD indicators between 2008 and 2011, in Portugal, the unemployment rate among young adults (25-34 years-old) with a tertiary education increased by 3.7% to reach 12.7% in 2011 (OECD youth unemployment rate average increased by 2.2 % to 6.8%), while the unemployment rate among young adults with lower levels of education increased 6.9 percentage points to reach 16.1% (OECD youth unemployment rate average increased by 4.5% to reach 18.1%). Therefore, although the economic crisis has been worse for young adults, those who had attained a tertiary education were less vulnerable to unemployment, which means that holding a degree still grants functional and comparative benefits in the job market compared to the remaining levels of education, as illustrated in Figure 2.4.1.

## 2.4.2. University of Aveiro

In order to provide the data required by the Portuguese Higher Education Accreditation Agency A3Es, the University of Aveiro (UA) developed the Observatory on the Social and Professional Paths of UA Graduates which produces its own reports.

The most recent report produced by University of Aveiro, based on questionnaires to alumni, regarding the employment rates of its graduates covers the period of 2008 to 2011 and followed the national trend of less vulnerability to unemployment among the people with higher levels of education (University of Aveiro, 2015). The results show that in general, the panorama of UA in terms of employability of graduates for the period under analysis is positive despite the negative pressure of the economic crisis that the country faced. The employment rates of graduates, taking into account the different types of teaching, study programmes and study areas is on average 80%. In particular, the engineering areas were even more successful with a rate of employment reaching 87%. On the other hand, the business sciences reached a lower rate of employment (77%). However, these results were within the national average of employment in these specific areas (DGEEC, 2014). It is also

shown in this report that degrees from UA offer protection against the risk of youth unemployment, which rate has reached nearly 35% nationwide, in 2015.

The Master and PhD degrees from UA recorded higher rates of employability compared to first cycle degree rates (84% and 89% respectively). Also these results followed the national trend as it can be seen in Table 2.4.2.1. In a closer analysis to the Table 2.4.2.1 it is clearly noticeable that the number of unemployed reduces in the higher levels of education. This fact suggests that the job market values these additional qualifications, nevertheless it is also true that the number of people with masters and doctoral degrees is lower than the number of people with bachelor degrees which may explain the lower rates of unemployment.

Table 2.4.2.1. Unemployed with higher qualifications by grade and age

Education level	<25 years		25 - 34 years		35 - 54 years		55 years and +		Total	
	N.º	%	N.º	%	N.º	%	N.º	%	N.º	%
<b>TOTAL</b>	<b>12 734</b>	<b>100,0</b>	<b>28 910</b>	<b>100,0</b>	<b>26 326</b>	<b>100,0</b>	<b>2 813</b>	<b>100,0</b>	<b>70 783</b>	<b>100,0</b>
Bachelor (pre-Bologna)	0	0.0	162	0.6	2 439	9.3	525	18.7	3 126	4.4
Degree	343	2.7	9 467	32,7	19 060	72.4	1 939	68.9	30 809	43.5
1 <sup>st</sup> Cycle degree	10 488	82.4	12 717	44.0	2 938	11.2	189	6.7	26 332	37,2
Master degree or 2 <sup>nd</sup> Cycle degree	1 903	14.9	6 488	22,4	1 637	6.2	143	5.1	10 171	14.4
PhD degree	0	0.0	76	0.3	252	1.0	17	0.6	345	0.5

Source: INE

A significant percentage of holders of 1<sup>st</sup> cycle degrees (60%) progressed to master level studies (2<sup>nd</sup> cycle degrees) immediately (without interrupting their studies) after their first degree, in particular in engineering and sciences areas. This, according to the data in Table 2.4.2.1, contributes to reducing the unemployment rate for youth.

Regarding the employment level of the graduates of UA (University of Aveiro, 2015) we need to underline the significant percentage of graduates who are working in their academic area (globally about 80% of graduates). This fact is particularly relevant for students who completed their Master in Engineering. Equally significant is the fact that about 85% of the graduates consider that the skills obtained in the courses taught in the degree in which they have graduated are consistent with those demanded in the current job market.

The report of University of Aveiro (2015) also shows that the majority (60%) of UA graduates have salaried employment with a fixed term contract instead of creating their own job and being self-employed. This value is even bigger in the master and doctoral levels of education. For example, 90% of the Engineers from UA declared to be salaried employees. According to Cardoso et al. (2012), this fact could be in partly explained due to the fact that Portuguese Universities are more focused on education for employability than for entrepreneurship. Regarding graduates' salaries, the average values typically range between €500, 00 - €1500, 00. A medium value, if it is taken into account that the average annual wage per full-time and full-year in Portugal in 2013 was 16 517 Euros (OECD, 2014). Holders of master degrees in Education and Engineering tend to be the best paid.

Finally, another important result is that the great majority of the graduates not only would choose the University of Aveiro again (more than 90%) but also the degree in which they have graduated (about 80%).

As it was previously referred by Cardoso et al. (2012), Portuguese Universities in the past years were more concerned about education for employability than entrepreneurship. Particularly, the UA is aware that both education for employability and entrepreneurship are really important for Portuguese students and for their performance in the job market. Therefore, various measures to promote employability as well as an entrepreneurial thinking between its students have been undertaken.

The Vice-Rector of UA, Prof. Doutor Carlos Pascoal Neto, highlights the pioneering of the UA in employability area through the development of the internship office entitled Gabinete de Estágios e Saídas Profissionais (GESP) in 2003, and the “remarkable work” of this office. This fact is, actually, borne out through the survey which served as the basis of the study of the UA graduates' employability covering the period of 2008-2011, promoted by Observatory on the Social and Professional Paths of UA Graduates (University of Aveiro, 2015). The Vice-Rector also underlines the fact that seven to ten per cent of the respondents stated that the GESP had a direct impact in their entrance in the job market. Furthermore, the UA was the first national university to provide an online portal dedicated to the supply and demand of employment for their graduates.

Besides, the GESP activity of supporting their graduates in entrance on the job market, where are included also the Forum 4E (event of enterprises, employment, entrepreneurship and students), the UA develops a set of activities of entrepreneurship and self-employment promotion, namely: training (through curricular units in varied courses and short-courses), support to innovative ideas and intellectual property (through the Technology Transfer Unit) and support to business ideas and new companies (through the Business Incubator of the UA and the Regional Business Incubator).

## 2.5. Spain – University of Alcalá de Henares

*by Antonio Guerrero*

### 2.5.1. Spain

#### Characterization of Spanish Education System

The Spanish education system is divided into five levels: 1) pre-school education (not compulsory and for children between 0 to 6 years old); 2) primary education (between 6 and 12 years old, compulsory and free of charge in public institutions); 3) secondary education (between 12 to 16 years old, compulsory and free of charge); 4) post-compulsory secondary education (between 16 to 18 years old, not mandatory); 5) higher education at university level (confers degrees of bachelor (studies between 3 and 4 years long), master (studies between one and two years long which requires the previous qualification of bachelor) and doctorate (studies several years long which requires the previous level of master or equivalent)).

## Current situation of entrepreneurship in Spain

The social and economic situation, in the most of the occidental economies during the last ten years, has fostered the rise of the so called "entrepreneur economy". According to the report of Global Entrepreneurship Monitor (GEM, 2015), the rate of entrepreneur activity for Spain, which relates to the participation of recently created companies (less than 42 months since creation) and the active population, has remained stable during the last years in 5.2%, however it shows a recent rise in potential entrepreneurs. According to a survey conducted to the population between 18 and 65 years old, 16% of the respondents think that currently there are clear opportunities for entrepreneurship, which is a 2.1% increment with respect to 2012. Logically the increment of unemployment influences the growth of this perception. However, this type of evolution of entrepreneur activities is one of its main weaknesses. Entrepreneurship as a solution to unemployment, or as solution to a frustrating relation with the company where people are working, or as solution for a better conciliation between professional and personal lives, are motivations that experts consider a factor of failure.

Considering the data provided by the Spanish Ministry of Education, Culture and Sports in its report "*Data and figures of the university system 2013-2014*", one can see that the entrepreneur activity of Spanish graduates continues being very low, with low rates of self-employment and entrepreneurship. Thus, in 2012, barely 7.8% of university graduates (using the group that finalized studies in 2005/06) are registered in the Spanish Social Security as self-employed workers. Nevertheless, there has been a rising trend in the last few years, since the percentage of self-employed people was 6.1% in 2007 and 6.4% in 2009. However, these percentages are likely to be higher if analysed the graduates from the start of the economic crisis onwards. According to UAH report (2014) graduates spin-offs are growing and innovating more than other companies at least while they are still in business, however graduates find more problems to keep on active. This may be explained by the difficulty felt by graduates when evaluating the possibility of creating their own company, not only because the lack of knowledge but also the lack of skills and entrepreneurial culture which education system should provide in its process of training and learning.

## Employability of university graduates in Spain

In 2014 the unemployment rate in Spain (23.7%) was way above of the European average (6%). On the other hand, the unemployment rate of graduates (14.5%) during 2014 was much lower if compared to the total unemployment (23.7%). So, the higher education degree in a certain level works as a protection against unemployment.

Unemployment of graduates has been decreasing during 2014, while the total unemployment remains static. The upward tendency of total unemployment of previous years has changed, and 2014 presented less unemployment than 2013, both in Spain and in Europe. The turbulence of economic crisis is starting to finish.

Despite the positive tendencies, the unemployment is currently very high in Spain with around one out of four being unemployed. In March 2014, employment saw its first annual rise since the beginning of the economic crisis in 2008, and some of the sectors have, actually, increased recruitment. For example, in the Spain's largest



region, Castilla y León, there were more opportunities than ever for personal care workers, construction workers and chefs.

Nevertheless, there are certain sectors in Spain where vacancies exist despite the high unemployment rates as the positions require specific skills and, therefore, it is difficult to find qualified employees. These generally include medium to highly qualified positions in teaching (including language teachers), engineering, IT, commercial relations, medical practitioners, web and multi-media development, real estate, hotels, restaurants and tourism.

Based on the annual report from the Spanish Ministry of Education, Culture and Sports (MECD, 2014), there is additional information and conclusions regarding employability for graduate students:

- This report has been conducted with the group of 2009-10 graduate students of first and second cycle (bachelor and master students), and analysis done on the basis of the information provided by the Spanish Social Security. The study has based its conclusions on the responses from a total number of 190.749 students. It analyses results about students one and four years after the end of their studies (respectively in 2011 and 2014).
- The general affiliation rate (new inputs in the Social Security, meaning new jobs found) of graduates one year after the finalization of their studies is 43.4%, and four years later it has reached 64.4%, which is, 20 percent higher.
- Graduates from the public universities during the first year after their studies show an affiliation rate lower than private universities, although this difference has become minimal during the years, due to the following factors:
  - The offer of university degrees is different between public and private universities. The public universities offer a wider range of degrees including for the areas where the affiliation rate is relatively low.
  - The socioeconomic background of the students accessing one or the other type of universities is different, as confirmed comparing the type of studies of the parents and their type of jobs.
  - Majority of the private universities derive from the enterprise world, which contributes to a more intense relation between university and companies.
- There is a considerable difference between the affiliation rates of traditional and online universities. This is due to the different type of students accessing each type of university: in online universities there is a higher number of older students who are already inserted in the labour market before ending their studies, and this is another reason why they choose this kind of universities.
- More than half of the graduates (54.3%) belong to the area of Social and Legal Sciences and their affiliation rate is around the average in the first year but below it in the fourth year (63.8% compared with the average 64.4%).
- The branch with lower success rates in the job market is Arts and Humanities, which has in fourth year an affiliation rate of 48.8%. The area of Health Sciences is the one with highest affiliation rates (71.4% at fourth year), although this may be due to the need of doing practices in their specialization before finishing studies.
- Engineering and Architecture reached a high affiliation rate of 67.2%, despite the economic crisis of this period.

- The branch of Sciences is an area very focused in the research activity and that's why many of the graduates continue their learning process. Concretely, 57.2% of graduates in this group continue studying in 2011.
- There is a certain imbalance between the degrees mostly demanded by the students and the affiliation rate. Firstly, there is a group of degrees with high affiliation rates but with low passing marks (result of the demand of students and the offer of places in the universities), for example: Optics and Optometry, Administration and Direction of Enterprises, Mathematics, Chemistry, Informatics (Computer Science) and some specialities in Industrial Engineering (electricity, electronics and mechanics). On the other hand, there are degrees widely demanded by the students and with a low affiliation rate, for example: Publicity and Public Relations, Audio-visual Communication, Fine Arts and Journalism. All of them with very high passing marks and affiliation rates under the national average, even below 50%.
- The percentage of autonomous/self-employed workers affiliated to the Social Security is 7% the first year and 10.3% four years later meaning that one out of every 10 university graduates work on their own, however, it is surprising that the branch of "Social and Legal Sciences", with their studies related to the business, market and enterprise world, is the one with lowest percentage of autonomous workers (8.7% after four years).
- Only one out of every two self-employed has a long-term work, with no improvements with the passing years. After the first year of graduation, 48.2% has long-term contract and four years later it reaches 50.7%. There are little differences between public and private universities, and mainly between traditional and online universities.
- Engineering and Architecture is a branch with higher number of long-term contracts (61.9% after the fourth year), followed by Social and Legal Sciences (52.2%). On the opposite, Health Sciences has only 33.8% of long-term contracts (partially due to the situation of resident doctors) and Sciences have 41.8%.
- Informatics, Law, Administration and Business and Mathematics (specially for the degree of Public Notary with 84.9% of long-term contracts after the fourth year) are the degrees with higher long-term employment (around 70%), while the ones related to health, child teacher training and the ones linked to research and technological development) have lower level of long-term employment. This is the case of Physical Sciences, Chemistry, Geology, Sciences of Life, Health and Teacher Training, all of them with a rate of long-term contracts around 30%.
- Those degrees with more employment and higher affiliation rates have a more stable type of employment and higher percentage of long-term contracts.
- The first year after the end of studies, 48.5% of the graduates occupy a position in accordance with their qualification level. Four years later the percentage increases to 55.5% (only one out of every two graduates). And one out of every four graduates is employed for development of manual activities for which no qualification is required.
- There are significant differences between public and private universities: after the fourth year 53.8% public graduates and 66.1% private graduates occupy positions

according to their qualification level. The reasons are the same described previously in point number 3.

- The graduates of the branch Social and Legal Sciences are the ones with lowest proportion of jobs in accordance with their qualification level (44.7%), even lower than Arts and Humanities (50.6%), which is the branch with worst affiliation rates. That is to say, the graduates of Social and Legal Sciences which represent one out of every two university graduates and hardly have affiliation rates near the national average, present higher probability of finding work positions below their qualification level.
- There is an important mismatch between the type of qualifications demanded by the labour market and the studies elected by the students. The graduates of certain degrees with lowest passing marks are the ones that reach highest affiliation rates and the ones with higher probability of finding a job in accordance with their qualifications, this is the case of Informatics, some specialities of Industrial Engineering, Mathematics, Physics and Chemistry. The opposite case is found in degrees of Communications and Audio-visual Media.
- 26.4% of graduates (one out of every four graduates) were affiliated in the Social Security system before finishing the studies. Among them, 53.9% has long-term contract, 60.6% have full-time work and 35.4% have positions in accordance with their university level.
- One out of every three graduates in Social and Legal Sciences works before finishing their studies, while it is one out of every four in Engineering and Architecture, one out of every five in Science and one out of every six in Health Sciences. Graduates of Social and Legal Sciences, the ones with higher proportion in finding a work before ending studies, are the ones with lowest percentage in finding a job in accordance with their qualifications.
- Regarding these groups of graduates who worked before finishing their studies, one observe that their affiliation rate decreased only 0.97% in the next four years, much below the rate of youth unemployment rate (18.9%). This is to say, these graduates can maintain their jobs in higher proportion than the rest of young population. In addition, this means that a university degree protects against unemployment to a certain degree, even at the expense of occupying jobs that require qualification levels lower than acquired at the university.
- The percentage of long-term contracts of this kind of graduates in the fourth year after finalization of studies (66.1%) is clearly higher than the average (50.7%). On the other hand, only 51.4% of them will have a job in accordance with their qualifications, lower than the general average (55.5%). This means that the students who found a job before finishing their studies will continue working with long-term contracts but with a low-qualification job.

## 2.5.2. University of Alcalá

### Entrepreneurship activity in University of Alcalá

Among the services offered by University of Alcalá, one of the most important is the **Service of Practices and Professional Orientation**, which besides coordinating and managing the practices in companies of the bachelor and master students,

arranges activities related to the promotion of entrepreneurship. There are 4,500 registered collaborating companies and in the last academic year 2014-15, nearly 1,700 students carried out around 860,000 work hours during a period of practices of 4 months each on average. This service also manages a job listing in internet where they receive and publish the employment offers from the companies in the area of Madrid and Guadalajara. During the present year a total of 330 offers have been published.

On the other hand, through the Vice-Rectorate of University several summer courses and seminars related to the creation of companies and how to elaborate business plans are offered to the students.

Also to mention the **groups of teaching innovation** inside the University with projects carried out targeting students from different areas, especially from Social Sciences and Technologies, to acquire the abilities needed to foster their entrepreneur spirit.

Regarding the phase of launching a company, the UAH Investigation Vice-Rectorate proposes a **contest about creation of technology-based companies**. The projects which finally are awarded, are offered the possibility of using for free the facilities of the Scientific-Technologic Park in Guadalajara (GUADALAB), specifically, its spaces used as company incubators.

At a research level, the research work entitled "**Company Dynamics, SMEs and Entrepreneurship**" carried out by the Institute of Social and Economic Analysis of the UAH (IAES) was developed in order to analyse, in an eclectic and multidisciplinary way, the figures of the company and the entrepreneur, making qualitative studies about entrepreneur types and factors explaining their activities, about their results and work efficiency, regional analysis as well as entrepreneurship financing.

Other activities carried out, related to increasing the awareness and gathering entrepreneurship ideas, are the following:

**University Entrepreneurship Programme EOI:** During the academic year 2014-15 several free courses were developed (duration: 4 weeks and 30 lecture hours) oriented to graduate students, post-graduate and alumni, about the different aspects of management related to entrepreneurship and with special emphasis in the project evaluation, presentation and defence of projects.

**Entrepreneurship Prizes:** Presentation of business plans of our students in the call "*Start-Up Programme*" 2015 where one candidate is selected for the national final award. The emphasis is set on the business idea and the viability of the company plan.

**Summer courses:** As in previous years, UAH offered the sixth edition of the summer course "How to create your own company using the database SABI", where students learn how to gather information from the environment and develop a business plan. Other more specific summer courses were also offered.

**Sensitivity conferences in the campus of the University:** Conferences of entrepreneurship and promotion of self-employment in the different faculties and schools of University of Alcalá, open to all type of students of any degree and year, and also to teachers and researchers.

**University Observatory of Entrepreneurship:** Project developed together with many other Spanish and American institutions, with the aim of starting an observatory that

measures the entrepreneurship intentions of the university students from Spain and Latin-America.

**School of Entrepreneurship:** UAH has launched this innovative school which consists of a platform of essential knowledge, attitudes and skills for the practice of the entrepreneur activity, which includes training in aspects such as creativity, innovation, communication, personal abilities, social skills, organizational experience, with the help of tutorials, practical tools, games and simulators (<http://escuelaempredimiento.uah.es/>).

## B) Strategic plan in the short and long run

The objective of this strategic plan is to foster entrepreneurship initiatives in UAH, covering the following aspects (UAH, 2014):

- **Raise awareness** to the students, teachers and administrative staff of UAH about the entrepreneurship: advantages in terms of socio-economic welfare and risks inherent to any entrepreneurship initiative.
- Facilitate the access to **training tools** for competencies and skills necessary to start any type of project.
- To participate in **EMPREDIA network**, composed by ten Spanish Universities and the most important universities in Latin-America and Portugal. This network promotes university innovation in entrepreneurship and is managed with the support of the Bank of Santander. Among its aims there is the creation of entrepreneurial ecosystems, fostering increase of knowledge transfer, technological development, innovation and entrepreneurship of the universities in the network, as well as create a seal of entrepreneur quality, linked to university spin-off companies.
- Foster an efficient exploitation of the **scientific-technological facilities** at University of Alcalá (laboratories, equipment, patents, etc.) in favour of the creation of companies, either with a technological basis or associated to the development of the historic, cultural and linguistic heritage of the city of Alcalá de Henares.
- Achieve an **international position** by taking part in international projects related to fostering entrepreneurship with other European or Latin-American partners, for instance *HERMES (Higher Education and Research in Management at European Universities)*.

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

by Elisabeth Pereira, Madalena Vilas-Boas, Cátia Rebelo and Stefan Jahnke

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 economic competition and technology's fast development, that 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, 2012:218). 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, 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 (Versteede, 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 3.1 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 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 3.1 it is clearly 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 Versteede, Londers and Ludo (2014:4) 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 3.1. Employment rate (%) by level of educational attainment of young adults (25-29 years) in 2013

Year	Total employment rate		Less than primary, primary and lower secondary		Upper Secondary		Tertiary education	
	2008	2013	2008	2013	2008	2013	2008	2013
<b>EU-28</b>	<b>75,6</b>	<b>70,5</b>	<b>61,8</b>	<b>51,4</b>	<b>75,7</b>	<b>71,5</b>	<b>84,0</b>	<b>78,5</b>
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	<b>74,8</b>	<b>77,6</b>	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	<b>76,0</b>	<b>53,0</b>
Spain	75,2	58,1	68,5	49,7	76,4	58,0	<b>80,3</b>	<b>65,8</b>
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	<b>50,2</b>
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	<b>89,0</b>	<b>85,0</b>
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	<b>80,9</b>	<b>83,3</b>	70,2	71,5	88,7	88,0	94,9	<b>91,2</b>
Netherlands	88,4	81,6	74,2	65,6	89,5	80,6	93,3	88,7
Austria	<b>79,9</b>	<b>80,5</b>	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	<b>85,2</b>	<b>80,2</b>
Portugal	78,6	68,0	79,1	63,0	75,1	70,9	<b>81,1</b>	<b>71,0</b>
Romania	<b>69,2</b>	<b>70,1</b>	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 higher education, Table 3.2. 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.



Nevertheless, 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 3.2. Unemployment rate by year and academic field

Academic Field	Unemployment rate by year	
	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

Note: the % do not add up to 100% since the category "other" is not included in the table

In the last decade, the increasing importance of employability concept has been also tied with the Bologna Process reform of the European higher education system (Cardoso et al., 2014) 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 policies.

The Europe Strategy 2020 has for the tertiary education the target of reaching at least 40% of 30-34 years old people having 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 need of the labour market. In a knowledge-based society, if on one side the development of entrepreneurial skills are crucial, on the 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, 2014:3). 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 attainment in 2020 by 40% of young people 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).

Due to the central position that employability has been gaining in the last decades, studies and reports about this theme has flourished in order to understand this issue and some of these are summarized in the Table 3.3.

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: 6). Some authors like Cardoso et al. (2014:18) 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: 5) is used and it is based in a set of skills and attributes that improves 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.

Table 3.3. Summary of the relevant statistics literature on youth unemployment

Authors	Study	Results
Berlingieri, Bonin, & Sprietsma (2014)	Youth Unemployment in Europe Appraisal and Policy Options	Geographic mobility is the key to tackle youth unemployment; International migration may reduce imbalances between employment rates; International migration may reduce skills mismatch; Invest in foreign language skills; Standardize employment services and information; Involve all stakeholders.
International Labour Organization (2015)	World Employment and Social Handbook-Trends 2015	In 2019 more than 212 million people will be out of work; Unemployment rates are expected to decline gradually in developed economies; Youth unemployment (15-24) remains a global concern; Gender gaps in the labour market tend to persist; Job creation in the coming years will be mainly in the service sector;
European Commission (2015)	Accelerated pre-financing for the Youth Employment Initiative: Questions and Answers	7 million young Europeans without a job and not in education or training; 3.2 billion of budget to Youth Employment Initiative (YEI); YEI measures: a) direct support for high-quality traineeships and apprenticeships; b) provision of first job experience; c) reduction of non-wage labour costs; d) mobility measures to bring skills and jobs together; e) start-up support for young entrepreneurs (mentoring and access to finance).
Georgallis (2014)	An employment guide to quality internship - Experiences that work for your company and young people	Internships should primarily be an educational experience where young people can develop the skills and competencies they need to enter the labour market; Interns should be treated with the same professionalism and duty of care as regular employees; Interns should be fairly reimbursed or remunerated for the work they carry out; A quality internship should lead to a young person that has new professional experiences and that is better equipped to enter the labour market.
Alfranseder et al. (2011)	ESNSurvey 2011: Exchange, Employment and Added Value	Around 86% of students are rather satisfied or very satisfied with their stay abroad during their studies or internship; More than 50% of the respondents say that the volunteer work of ESN has encouraged them to join voluntary activities; The most important factors that motivate respondents to work abroad are greater opportunities for personal development, better working conditions, a better salary and previous experience in the potential host country; More than 97% of all respondents consider having studied abroad an advantage on the job market; Students that have studied abroad recorded higher improvements in all the skills <sup>39</sup> studied in this survey when compared with those who did not.

<sup>39</sup> English as foreign language; other foreign languages; communication; working in intercultural teams; negotiation; networking; creativity; problem-solving; analytical skills.

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: 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 and interpersonal skills.

Bhattacharyya (2011: 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: 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 can produce programs that improve skills, they can only 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: 219). Nowadays, the relation between employability and higher education institutions 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 (2012:219) *"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"*.

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 3.4) 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).

Table 3.4. 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

Adapted from Ahonen and 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 3.1).

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 his 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".



University of Kent (2011)

Figure 3.1 Skills map

Riemer (2002) in his 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.

Finally, other skills were also observed as important, for example Hernández-March, Peso, and Leguey (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.

## 4. Needs Analysis, Results and Discussion

by Elisabeth Pereira and Madalena Vilas Boas

### Introduction

#### 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 implemented three questionnaires to three target groups: Students, Employers and Academics. The three questionnaires were developed through the Survey Monkey website; therefore, in the appendices A1, A2 and A3 a converted version to Microsoft Word format is provided. 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 skills. A summarized version is provided in table 4.1 as well as illustrated in the figure 4.1.

Table 4.1. 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.

The methodology of the Needs Analysis Report was defined during the first meeting of the Steering Committee of the project in January 2015, in Alcalá de Henares. The Needs Analysis Report should 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 4.2).

To collect the necessary data, three questionnaires were sent by email to the target audience, and the survey was promoted and conducted by each one of the five partner universities: Aristotle University of Thessaloniki (Greece), University of Latvia

(Latvia), Technical University of Lodz (Poland), University of Aveiro (Portugal) and University of Alcalá (Spain). The sample was based in all the available database contacts of the three target groups.

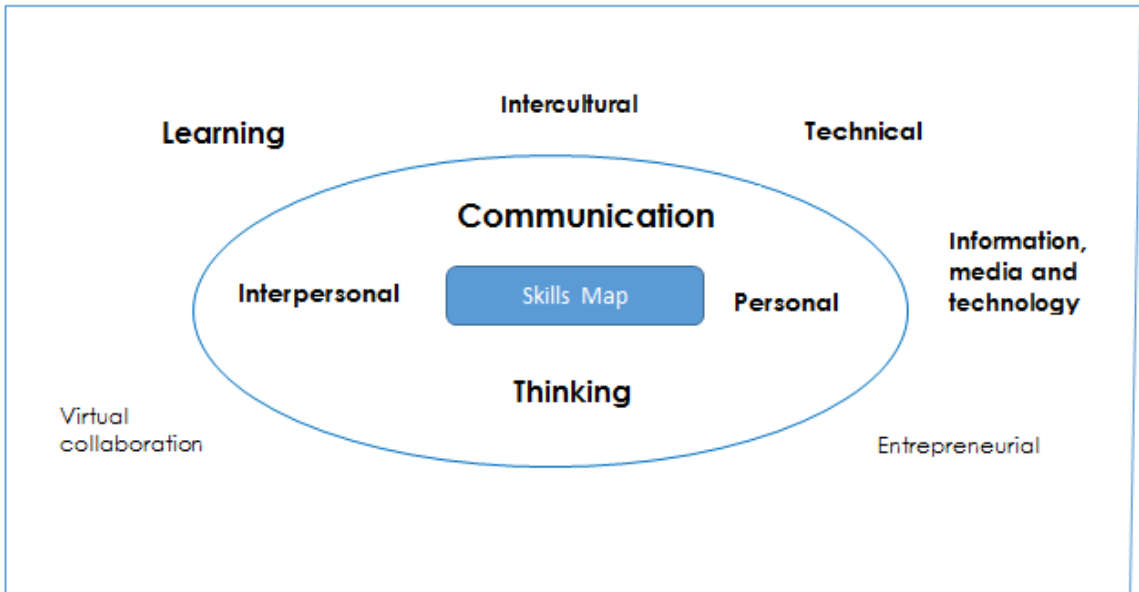


Figure 4.1. Essential skills of graduates

The data was collected during March, 2015. The total number of valid responses was 1204 for students, 303 for academics, and 227 for employers.



Figure 4.2. Methodology of the needs' analysis report

This chapter presents and discusses the results from the three Questionnaires.

#### 4.1.1. Needs Analysis - Students' Questionnaire

##### Sample

There were 1204 respondents from 32 **countries (Question4)**: 23 countries from the European Union<sup>40</sup> and other five European countries (Armenia, Russia, Switzerland, Turkey and Ukraine), one country from Africa (Cap Verde), two countries from Asia (China and Korea) and one country from South America (Brazil). Most of the countries mentioned above were represented by less than 12 respondents, therefore in all the calculus only the five countries that had more than 11 respondents were taken into account. These five countries represent 95% of all respondents. The country most represented was Portugal (415 respondents), followed by Poland (218 respondents), Spain (183 respondents), Latvia (164 respondents) and Greece (66 respondents) (Figure 4.1.1).

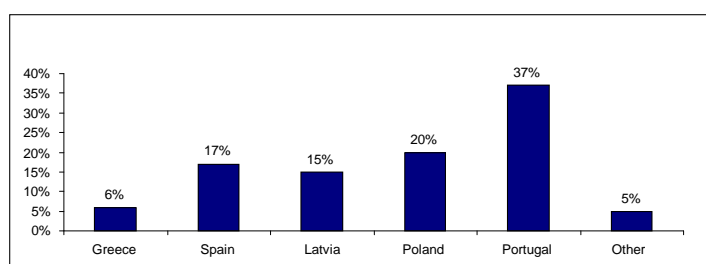


Figure 4.1.1. Country of the Students

According to the **Status (Question 1)**, 60.9% are *current students* and 39.1% are *former students* – the majority of respondents are “currently students” but the *former students* are also well represented.

About the present **degree of studies (or the highest acquired) (Q7)**, most of the respondents (90.5%) are doing or have done *Bachelor* or *Master Degree* (Figure 4.1.2).

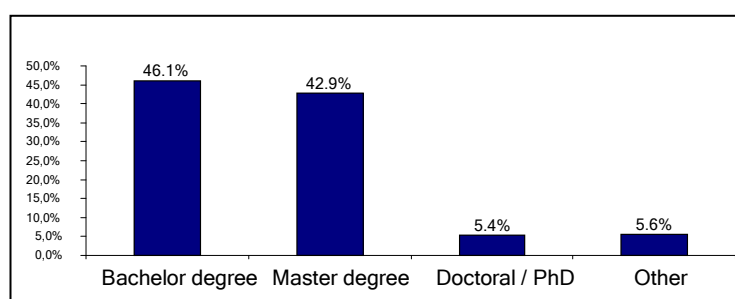


Figure 4.1.2. Present degree of studies (or highest acquired degree)

The **year of studies (Q2)** of the respondent presents a distribution that can be considered somewhat homogeneous, with all years represented (Figure 4.1.3).

<sup>40</sup> The exceptions were Croatia, Finland, Ireland, Luxembourg, Malta and Slovenia.



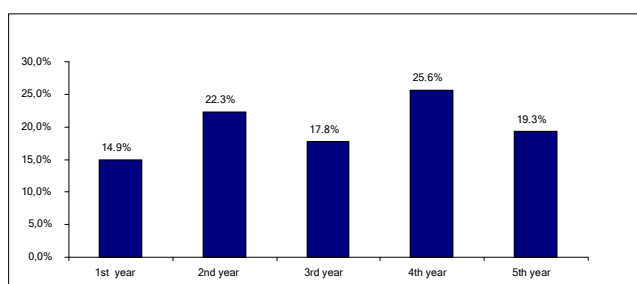


Figure 4.1.3. Current year of studies

About the **students' field of studies (Q6)**, most of the respondents (89.1%) are from *business, economic studies and engineering/computing*, the latter being the most represented in the sample (222 respondents are from *Economic studies*, 324 from *Business* and 435 respondents from *Engineering*) (Figure 4.1.4).

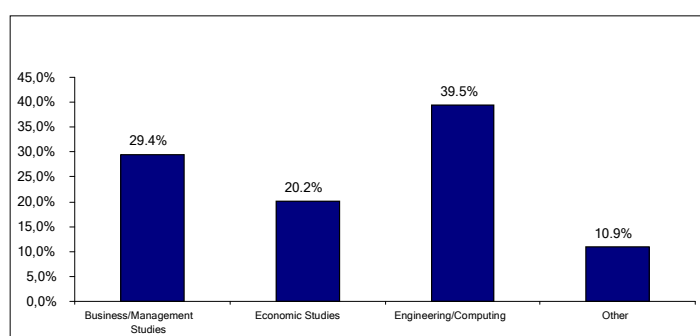


Figure 4.1.4. Students' field of studies

**Students who are doing or have done a mobility study period in a foreign country (Q16):** 40.5% of respondents are doing or have done a *mobility period in a foreign country*, and the majority of the respondents (59.5%) have-not studied abroad.

**Students who are doing or have done an internship abroad (Q17):** 22.2% of respondents are doing or have done an *internship abroad*, and 77.8% have not worked abroad as interns.

**Cooperation between university and companies (Q12):** Nearly one fifth of the respondents (17%) do not know whether their university cooperates or not with companies, but from those who know, 90.5% is convinced that their university cooperates with companies.

## Results

### Descriptive statistics

**The central part of the survey refers to the skills that are required by employers and skills that students consider they might lack.**

About the **skills that respondents consider essential to work in their fields (Q8)**, from one Likert scale, between 1 and 5, the results allow to conclude that only two skills have an average value that indicates that they are seen as less "than rather important": *virtual collaboration* and *entrepreneurial* skills; and the differences

between other skills are insignificant (4.08 and 4.42). The skills perceived as more important are communication and thinking skills (4.42) (Figure 4.1.5).

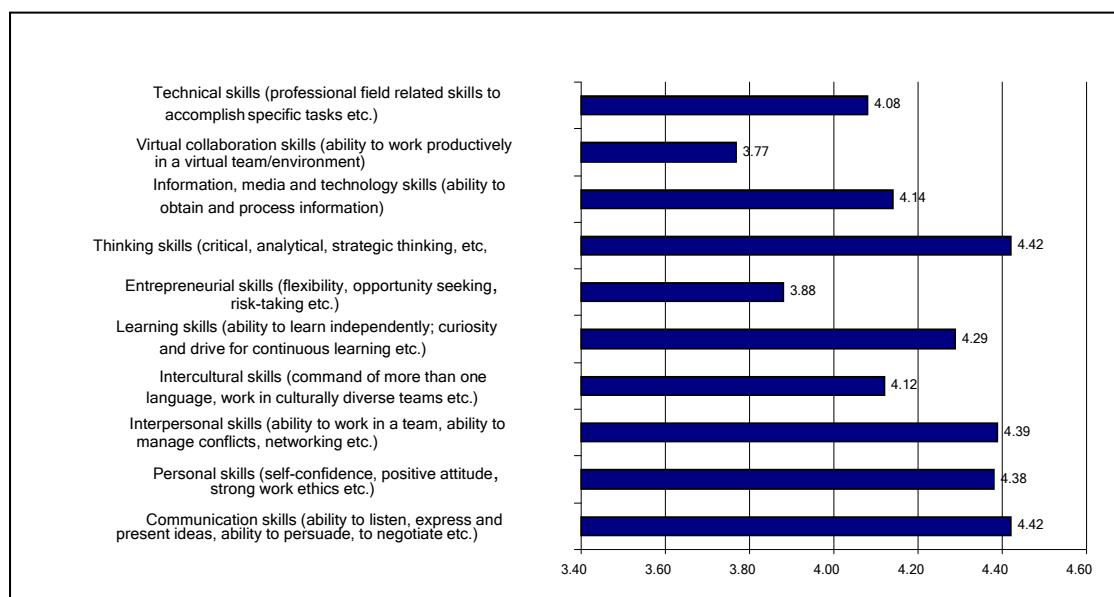


Figure 4.1.5. The most essential skills and competences to work (in one's own field)

When asked about the **skills that respondents consider they lack the most in order to work in their field (Q9)**, from one scale between 1 and 10 (where 1 is the skill student considers lacking the most and 10 - the least); all skills have been rated, in average, more than 4.68 (near the value of 5, the "neutral" category). The skills that, in average, students perceived as they lacking the most are personal skills (4.69) and interpersonal skills (4.72), followed by entrepreneurial skills (4.90), communication skills(4.93) and intercultural skills (4.98).

The skills seen as least lacking are technical skills (6.68), virtual collaboration skills (6.45) and information, media and technology skills (6.21) (Figure 4.1.6).

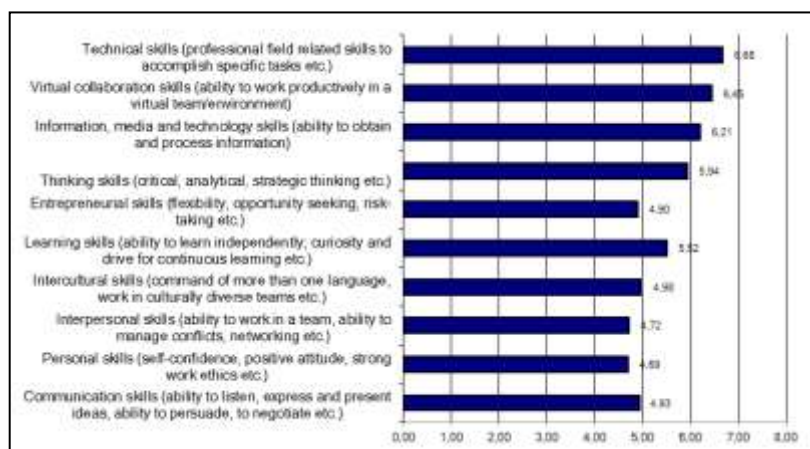


Figure 4.1.6. Lack of skills in order to work (in own field of studies)

**Skills respondents consider they have considerably improved at the university (Q10)**, from the Likert scale, between 1 and 5, all skills have been rated, in average, more than 3 (the neutral category). There is a small variability between the average values for the 10 types of skills wherewith the lowest value was 3.07 and 3.84 was the highest.

This allows to conclude that students perceive that studies at university do not improve any of these skills significantly, not even the technical ones.

Among the skills that students considered the least improved were *entrepreneurial* (3.07), *virtual collaboration* (3.19) and *intercultural skills* (3.40). The skills seen as the most improved at university were *learning* (3.84), *thinking* (3.79), *interpersonal* (3.78) and *technical skills* (3.72) (Figure 4.1.7).

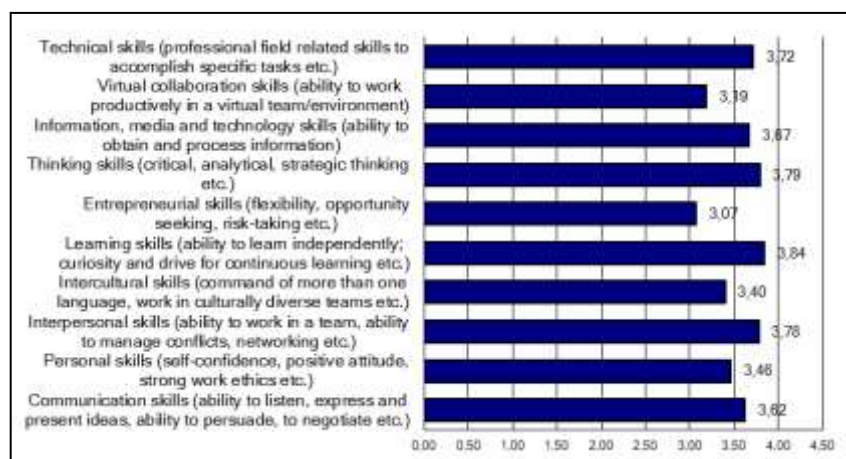


Figure 4.1.7. Improved skills and competences while studying at the university

**Measures on which universities are expected to focus more to improve the employability of their graduates (Q13)**, from one scale between 1 and 5, all procedures have been rated, in average, in the "rather important" category (4). Although all the given options are rated with very similar values, there is one with an average slightly higher, namely, *include a practical dimension in the courses* (4.45) (Figure 4.1.8).

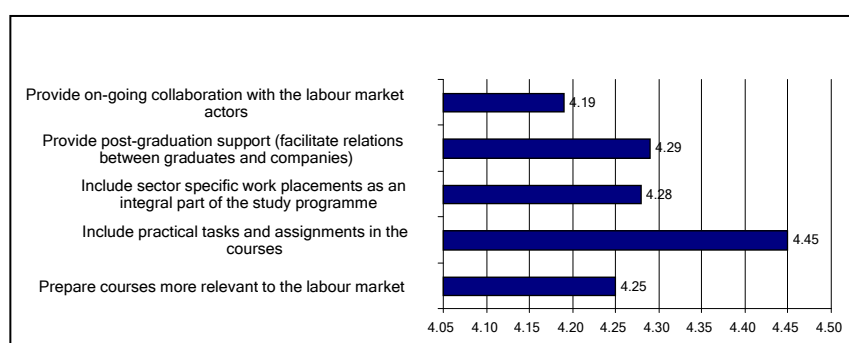


Figure 4.1.8. How universities should foster the employability of future graduates

About the **aspects taking into account by companies when recruiting (Q14)**, from one scale between 1 and 5, all aspects have been rated, in average, near the "rather important" category (4). The aspects students perceive as more desirable by companies are *field-related work experience* (4.34) and *specific professional skills and knowledge* (4.28). The aspects seen as less desired are: *study experience abroad* (3.42), *field-related internship experience abroad* (3.48) and *field-related internship experience locally* (3.62) (Figure 4.1.9).

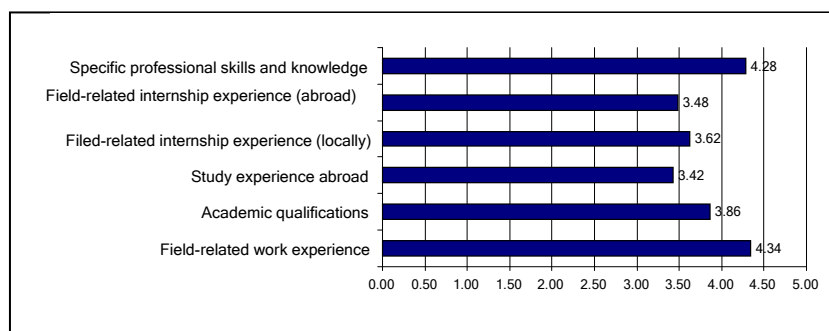


Figure 4.1.9. Student's perception of the aspects taken into account by companies

The **role of an international experience in the job market (Q15)**, from one scale between 1 and 5, is seen, in average, as "rather important" (4.2). In fact, most respondents (83.5%) find *international job experience* as "rather important" (43%) or "very important" (40.5%). Only 23 respondents (3.1%) considered the *international experience* as "not important" (0.7%) or "rather not important" (2.4%) (Figure 4.1.10).

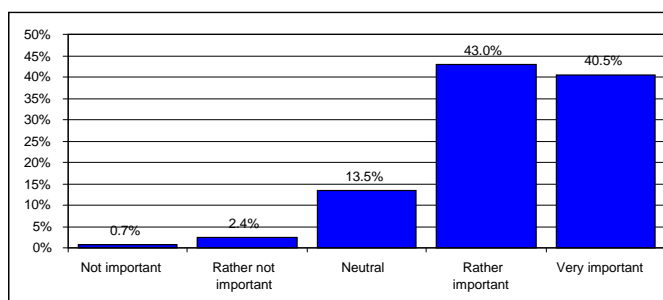


Figure 4.1.10. Role of an international experience in the job market

### Analysis of the main differences between variables: Differences between countries (Appendix 4.1.1)

It is clear that the perceptions of students are influenced by their country of origin and, thus, several differences were found out. For example, Portuguese students consider *interpersonal, learning and technical skills* more important than the remaining students. In turn, students from Poland pick the "thinking skills" as the most important and students from Latvia consider *communication skills* as the most important to master. On the other hand, students from Greece rated the majority of skills with low values which might say that these students do not see direct benefits of holding these skills.

When asked about the skills students lack, there are significant differences between countries only in two skills: *personal* and *technical skills*. Polish students think they lack *personal skills* less than the Greek students, and Polish students feel they lack *technical skills* more than Portuguese and Spanish. It should be noted that Portuguese students are those who see *technical skills* as more essential to their work and they are also those who feel they lack fewer *technical skills*.

As for the skills students see as improved while studying at the university, there are significant differences between countries in six skills: *communication, intercultural, learning, thinking, information media and technology, and technical skills*. In four of

those skills (*learning, thinking, information media and technology, and technical*) Portuguese students believe that the studies at university have helped them to improve their skills more than the other students. In five groups of skills (*intercultural, learning, thinking, information media and technology, and technical*) Greek students think the studies at university have improved the above mentioned skills less than students from other countries.

Portuguese students think their *universities cooperate with companies* significantly more than those from the other countries. On the other hand, Latvian students are those who believe that their universities are the less cooperative.

In the five measures listed to improve graduates' employability, there are significant differences in four items: *prepare courses more relevant to the labour market, add practical tasks to courses, offer internships to their students, and collaborate to the labour markets actors*. In three of them (*prepare courses more relevant to the labour market, offer internships to their students, and collaborate to the labour market actors*) Portuguese students see those measures as more important than the students from the other countries, while Greek students see those three measures as less important.

There are significant differences in five of the six features presented concerning the desires of potential employers (*work experience, academic qualifications, experience abroad, local internship and abroad internship*). Polish and Latvian students see the *work experience* as more desirable than Greek students. Portuguese and Polish students see the *academic qualifications* as more important to find a job than Greek and Spanish students. Spanish consider having an *experience abroad* as more important to recruiters than all the other countries. To sum it up, the role of an international experience is seen as more important by Polish and Spanish students than by the students from other countries.

There are also significant differences between countries in the number of students who have had a *mobility period abroad* or have done an *internship abroad*. The Spanish students have had a *mobility period abroad* wider than students from the other four countries.

### **Differences between students and former students**

About the essential skills needed/required to work in the chosen field, the Table 4.1.1 highlights the fact that in ten skills, there are significant differences between the perceptions of *current students (S)* and *former students (FS)* in four skills: *interpersonal, learning, thinking and technical skills*. That is, *former students* see these skills as more important than the *current students*.

As for the skills that respondents consider they lack the most, there are significant differences in *entrepreneurial and technical skills* – the *former students* feel they lack *entrepreneurial skills* more than *current students*, however, *current students* feel they lack *technical skills* more than *former students*.

As for skills improved by the university, from the ten skills presented, there are significant differences in five skills: in three of them former students consider the university improved their skills more than current students (*learning, thinking and technical skills*) and with the *communication and personal skills* the situation is inverted.

Table 4.1.1. Differences between students and former students

Variable	Students			Former Students			df	T	P	Differences
	N	Mean	SD	N	Mean	SD				
Essential Interpersonal skills	593	3.34	.76	401	3.47	.64	992	-2.75	.006	FS>S
Essential Learning skills	593	3.19	.78	401	3.43	.72	992	-4.95	.000	FS>S
Essential Thinking skills	593	3.37	.76	401	3.50	.67	992	-2.84	.005	FS>S
Essential Technical skills	593	2.96	.88	401	3.25	.78	992	-5.34	.000	FS>S
Lack Entrepreneurial skills	529	5.01	2.44	345	4.59	2.62	872	2.94	.003	FS>S
Lack Technical skills	529	6.48	3.39	345	7.00	3.13	872	-2.30	.022	S>FS
Improved Communication skills	479	3.69	.95	304	3.52	1.03	781	2.43	.015	S>FS
Improved Personal skills	479	3.53	1.01	304	3.35	1.07	781	2.34	.020	S>FS
Improved Learning skills	479	3.73	.98	304	4.03	.88	781	-4.31	.000	FS>S
Improved Thinking skills	479	3.72	.97	304	3.90	.98	781	-2.44	.015	FS>S
Improved Technical skills	479	3.58	1.04	304	3.92	1.01	781	-4.51	.000	FS>S
Prepare courses more relevant	469	3.15	.86	296	3.41	.78	763	-4.21	.000	FS>S
Stimulate internships	469	3.23	.77	296	3.38	.78	763	-2.66	.008	FS>S
Collaboration with the market labour	469	3.07	.85	296	3.39	.70	763	-5.51	.000	FS>S
Companies search for local internship	468	2.71	.87	295	2.49	.87	761	3.26	.001	S>FS
Companies search for abroad internship	464	2.55	.97	293	2.38	.94	755	2.41	.016	S>FS

About the five measures that universities can take to improve the employability of graduates, there are significant differences in three: *prepare courses more relevant*, *stimulate internships*, and *collaborate with the labour market*. In all the three former students consider these measures more important than the current students.

As for what companies value when seeking new employees, there are only significant differences with regard to *internships*, whether done in the country or abroad, with current students perceiving them as more valued by employers in comparison to former students.

### Differences between students in different years of study

The perception about almost all variables of the survey was similar among students from the five years of study, which allows to conclude that their perceptions tend to do not change along their study cycle (Table 4.1.2). The only significant differences occur in two variables: lack of *personal skills* and *companies search for study experience abroad* and even there were not significant differences between pairs of year studies.

Table 4.1.2. Differences between students in different years of study

Variable	Year of study	N	Mean	SD	Df	F	P	Differences
Lack Personal skills	First	79	3.96	2.98	4	2.63	.034	
	Second	132	4.70	2.80				
	Third	87	5.05	3.07				
	Fourth	136	4.29	2.89				
	Fifth	93	5.15	3.17				
Companies search for study experience abroad	First	69	2.38	.93	4	2.63	.034	
	Second	121	2.29	1.07				
	Third	77	2.25	1.021				
	Fourth	118	2.58	1.04				
	Fifth	80	2.64	.83				

### Differences between students in different fields of study

There are several significant differences in the perceptions of students from different fields of study (Table 4.1.3). About the skills they see essential to work in their field, from the ten skills presented, there are differences in seven: *intercultural, learning, entrepreneurial, thinking, information media and technology, virtual collaboration* and *technical skills*. This may be explained by the fact that *engineering/computing* students see skills as more important than students from the *business* and/or *economic* field (*learning skills, information, media and technology skills, and technical skills*). There is only one type of skills that students from *business* and *economic* studies see as more essential than *engineering* students, the *entrepreneurial* skills. There is also only one kind of skills that students from *economics* studies see as more essential than students from *business* field – *thinking* skills.

About the skills students think that they lack, there are differences in three of the skills listed: *personal, information media and technology, and virtual collaboration* skills. Students from *economic* studies think that they are lacking *personal* skills less than students from the *business* field.

About the skills students see as the most improved by university there are significant differences in three of them: *learning, information media and technology* and *technical* skills. In all cases, students from *engineering/computing* believe that their skills were more improved by university than students from *economic* and *business* studies.

About what employers search in graduates when recruiting, there are significant differences in three of the six options provided and students believe that companies search for *academic qualifications, for people who did an internship locally, and for specific professional skills and knowledge*. Students from *economic* studies perceived more than the *engineering/computing* students that employers search for *people who did a local internship*. While *business* students perceive less than *engineering/computing* and *economics* students that employers search for *specific professional skills and knowledge*.

Table 4.1.3. Differences between students in different fields of study

Variable	Field of study	N	Mean	SD	Df	F	P	Diff.
Essential Intercultural skills	Business	290	3.10	.80	3	2.75	.042	O>Eng****
	Economic	200	3.13	.81				
	Engineering/Computing	399	3.07	.83				
	Other	105	3.32	.83				
Essential Learning skills	Business	290	3.1	.78	3	7.71	.000	Eng>Bus* Eng>Ec** Eng>O****
	Economic	200	3.23	.71				
	Engineering/Computing	399	3.46	.72				
	Other	105	3.24	.83				
Essential Entrepreneurial skills	Business	290	3.02	.91	3	10.95	.000	Bus>Eng* Bus>O** Ec>Eng* Ec>O**
	Economic	200	3.08	.75				
	Engineering/Computing	399	2.74	.89				
	Other	105	2.67	1.01				
Essential Thinking skills	Business	290	3.32	.76	3	3.31	.019	Ec>B****
	Economic	200	3.53	.62				
	Engineering/Computing	399	3.44	.71				
	Other	105	3.41	.89				
Essential Information skills	Business	290	3.04	.84	3	3.89	.009	Eng>Bus****
	Economic	200	3.18	.72				
	Engineering/Computing	399	3.22	.74				
	Other	105	3.02	.98				
Essential Virtual Collaboration skills	Business	290	2.75	.89	3	5.18	.001	Ec>O** Eng>O****
	Economic	200	2.91	.76				
	Engineering/Computing	399	2.79	.88				
	Other	105	2.50	1.02				
Essential Technical skills	Business	290	2.92	.92	3	19.28	.000	Eng>Bus* Eng>Ec*
	Economic	200	2.94	.77				
	Engineering/Computing	399	3.32	.73				
	Other	105	2.84	1.02				
Lack Personal skills	Business	267	4.24	2.89	3	3.45	.016	Bus>Ec****
	Economic	172	5.08	3.11				
	Engineering/Computing	343	4.77	2.92				
	Other	92	4.98	2.96				
Lack Information skills	Business	267	6.24	2.57	3	3.34	.019	O>Eng****
	Economic	172	6.22	2.52				
	Engineering/Computing	343	6.38	2.37				
	Other	92	5.46	2.73				
Improved Learning skills	Business	240	3.62	.95	3	9.33	.000	Eng>Bus* Eng>Ec****
	Economic	154	3.77	.98				
	Engineering/Computing	303	4.04	.91				
	Other	86	3.91	.93				
Improved Information skills	Business	240	3.48	1.02	3	9.72	.000	Eng>Bus* Eng>Ec**** Eng>O**
	Economic	154	3.62	1.04				
	Engineering/Computing	303	3.90	.91				
	Other	86	3.47	1.11				
Improved Technical skills	Business	240	3.51	1.04	3	21.26	.000	Eng>Bus* Eng>Ec* Eng>O*
	Economic	154	3.47	1.04				
	Engineering/Computing	303	4.08	.92				
	Other	86	3.47	1.12				
Companies search for academic qualifications	Business	236	2.79	.92	3	3.22	.022	O>Bus**** O>Eng****
	Economic	150	2.93	.94				
	Engineering/Computing	293	2.82	.90				
	Other	85	3.12	.93				
Companies search for internship locally	Business	236	2.65	.87	3	4.45	.004	Ec>Eng**
	Economic	150	2.81	.87				
	Engineering/Computing	292	2.50	.86				
	Other	85	2.65	.91				
Companies search for specific professional skills and knowledge	Business	233	3.11	.84	3	5.82	.001	Ec>Bus** Eng>Bus**
	Economic	150	3.39	.78				
	Engineering/Computing	293	3.34	.75				
	Other	85	3.36	.77				

\* p<0,001

\*\* p<0,005

\*\*\* p<0,01

\*\*\*\*p<0,05



### Differences between those students who studied abroad and those who did not

There are significant differences between students who did *study abroad* and those who *studied only in their home country* in nine variables (Table 4.1.4). With the exception of *thinking skills* and *lack of intercultural skills* the students who *studied abroad* perceive the remaining variables (*lack entrepreneurial skills*, *improved intercultural skills*, *post-graduation support* companies search for *studies abroad*, companies search for *internship locally*, companies search for *internship abroad*, role of *international experience*) as more important than those who stayed at home.

Although students who *studied abroad* feel that the university improved their *intercultural skills* more than the other, they also perceive themselves as lacking *entrepreneurial skills* more than those who did *not study abroad*.

As expected, the students who *studied abroad* think that employers value *studying* and doing *internships* (abroad or locally) more than the respondents with no *mobility experience*, and they see the role of an *international experience* as more important than the others. They also believe that *universities should support their graduates* after the graduation to improve their employability.

Table 4.1.4. Differences between students who studied abroad and those who did not

Variable	Without mobility			With mobility			Df	T	P	Differences
	N	Mean	SD	N	Mean	SD				
Essential Thinking skills	455	3.51	.64	310	3.37	.75	763	2.78	.006	No>Yes
Lack Intercultural skills	455	4.84	2.57	310	5.28	2.71	763	-2.25	.025	No>Yes
Lack Entrepreneurial skills	455	5.06	2.61	310	4.61	2.44	763	2.40	.017	Yes>No
Improved Intercultural skills	455	3.24	1.07	310	3.64	1.14	763	-4.87	.000	Yes>No
Post-graduation support	455	3.24	.80	310	3.36	.73	763	-2.15	.032	Yes>No
Companies search for studies abroad	454	2.22	1.04	308	2.71	.97	760	-6.54	.000	Yes>No
Companies search for internship locally	454	2.56	.87	309	2.72	.87	761	-2.39	.017	Yes>No
Companies search for internship abroad	449	2.34	.95	308	2.69	.94	755	-4.92	.000	Yes>No
Role of international experience	455	3.06	.83	310	3.41	.73	763	-6.04	.000	Yes>No

### Differences between students who did an internship abroad and those who did not

When comparing students that did an *internship abroad* with those who did not, there are significant differences in seven variables (Table 4.1.5). As expected, the former perceive, more than the latter, that during university they improved their *intercultural skills*, they perceive more that companies search for candidates that *studied abroad* or did an *internship abroad*, and they see the role of an *international experience* as more important.

Table 4.1.5. Differences between students who did an internship abroad and those who did not

Variable	No internship abroad			With internship abroad			df	T	P	Differences
	N	Mean	SD	N	Mean	SD				
Essential Thinking skills	595	3.28	.67	170	3.36	.76	763	1.99	.048	No>Yes
Improved Intercultural skills	595	3.36	1.13	170	3.56	1.01	763	-2.06	.040	Yes>No
Prepare courses more relevant	595	3.28	.80	170	3.12	.94	763	2.29	.022	No>Yes
Practical tasks	595	3.48	.70	170	3.34	.769	763	2.34	.020	No>Yes
Companies search for studies abroad	593	2.34	1.06	169	2.68	.92	760	-3.78	.000	Yes>No
Companies search for internship abroad	588	2.40	.96	169	2.75	.92	755	-4.20	.000	Yes>No
Role of international experience	595	3.17	.83	170	3.34	.71	763	-2.41	.016	Yes>No

The students who did not do an *internship abroad* see *thinking skills* as more important to their field than those who did. These students, the ones who did not do an *internship abroad* consider that the best measure that universities should undertake to enhance their graduates' employability is *through preparing more relevant courses to work* as well as *include practical tasks in their courses*, while the other students who did an *internship abroad* value less these two variables. Indeed, this is an expected data since those who did not do an *internship* feel they need more contact with the reality of the labour market than those you did.

#### 4.2.1. Needs Analysis – Employers' Questionnaire

##### Sample - Companies

**Country (Q1):** There are 205 respondents from companies from four countries: Portugal (86), Spain (67), Poland (43), and Latvia (9) (Figure 4.2.1).

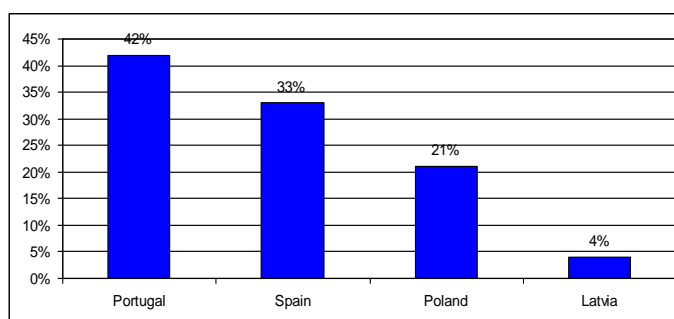


Figure 4.2.1. Country of the respondents (Employers)

**Number of employees (Q2):** Most of the companies have more than 50 employees (59.5%), but there are companies from all sizes, from very small (less than 10 – 36), until large companies (more than 250 – 73) ((Figure 4.2.2).

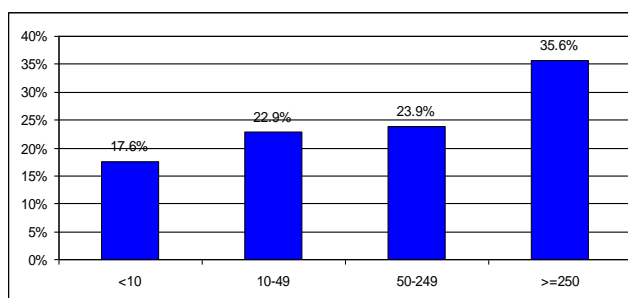


Figure 4.2.2. Number of employees

**Ownership structure (Q3):** Almost all companies are private (194 - 94.6%), but there are also public (3 – 1.5%) and mixed (8 – 3.9%).

**Field of economic activity (Q4):** Most of the companies are from the tertiary sector (126), but there are also companies from the primary (2) and secondary (74) sectors (Figure 4.2.3).

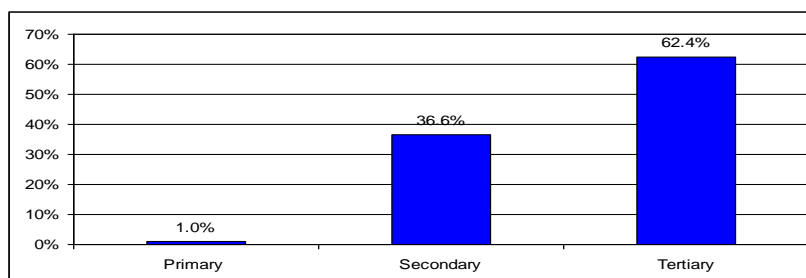


Figure 4.2.3. Field of economic activity

**Overall percentage of higher education graduates currently employed in each company (Q17):** The companies surveyed tend to have a high number of graduates: 57.8% (85) have more than 26% of workers with a higher education degree (Figure 4.2.4).

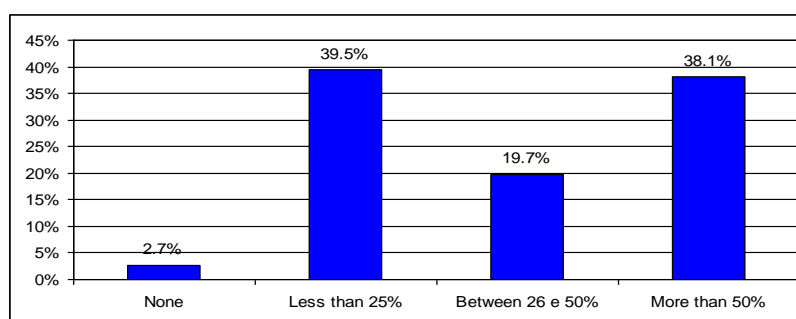


Figure 4.2.4. Overall percentage of higher education graduates currently employed in each company

**Education fields from which companies mostly need higher education graduates (Q16):** the companies surveyed need mainly *engineering/computing* graduates (83.5%), followed by professionals from *business/management* studies (37.4%) and *economics* studies (25.9%) (Figure 4.2.5).

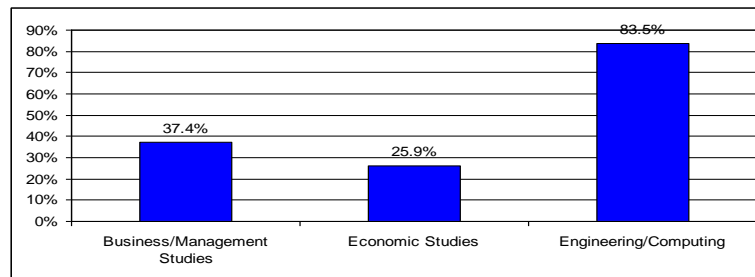


Figure 4.2.5. Education fields from which companies mostly need higher education graduates

**Sample – Respondents**

**Position of the respondent in the company (Q19)**, almost half of the respondents work in the Human Resources Department (49%); but there are about 20% of General Managers, Directors or Managing Director, and about 32% who occupy other function (Figure 4.2.6).

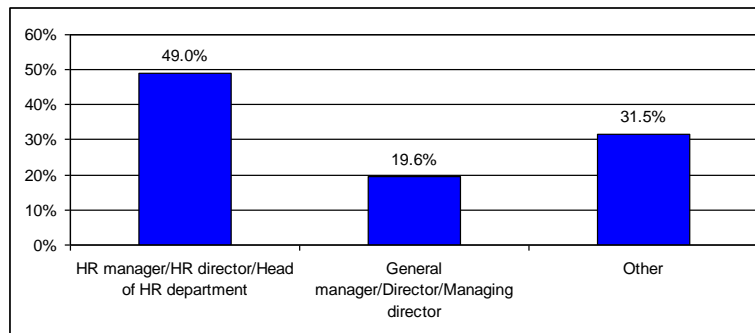


Figure 4.2.6. Position of the respondents in the companies

**Academic qualifications of the respondents (Q20)**, most of the respondents have a *Master degree* (53.1%), followed by the *undergraduate degree* (38.6%) (Figure 4.2.7).

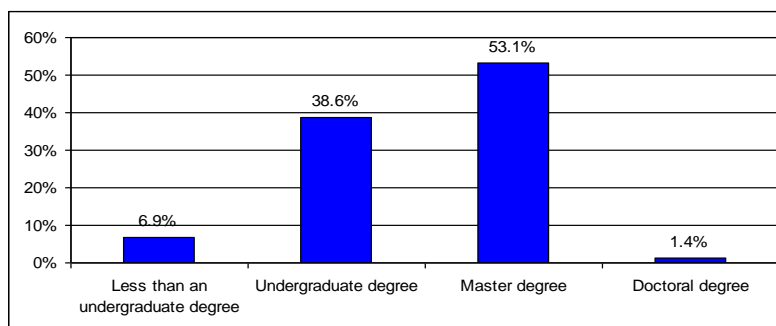


Figure 4.2.7. Academic qualifications of the respondents

**Age (Q21):** Most of respondents are between 30 and 50 years old (Figure 4.2.8)

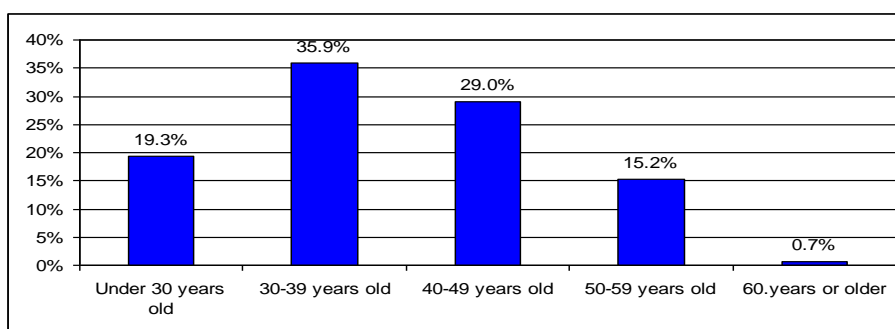


Figure 4.2.8. Age of the respondents

Concerning the **percentage of day-to-day work interacting with people in or from other countries (Q18)**, most of respondents spend less than 25% of their time interacting with foreigners. Nevertheless, it should be noted that 21.8% spend more than 50% of their time interacting with people from other countries (Figure 4.2.9).

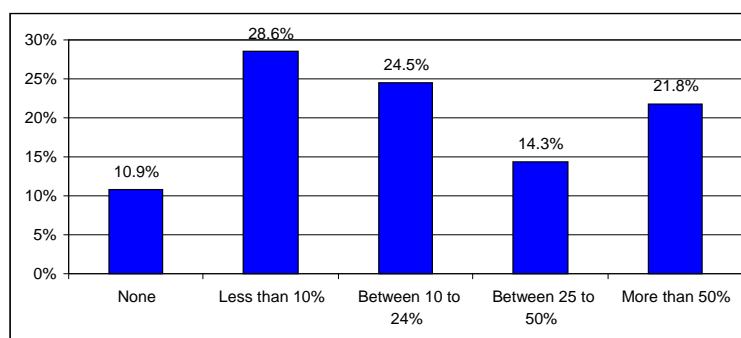


Figure 4.2.9. Percentage of day-to-day work interacting with people in or from other countries

## Results

### Descriptive statistics

When asked whether graduates **recruited in the last three years have the needed skills to work on their companies (Q5)**, for almost all of respondents (93.1%) graduates who have been recruited in the last three years have the skills required to work in the respective companies. Nevertheless, it should be noted that almost half of the respondents (41.1%) only "somewhat agree" with that. Employers seem to have a not solid but positive perception about graduates' competency (Figure 4.2.10).

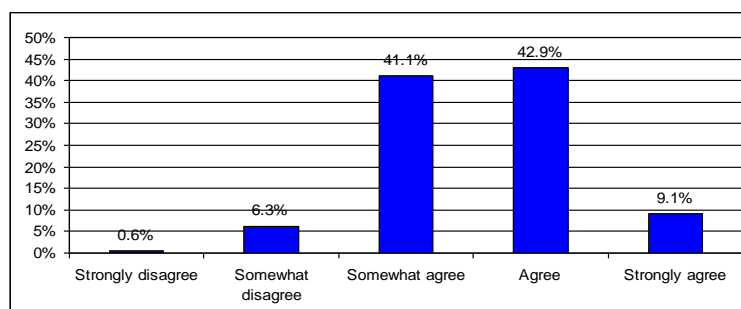


Figure 4.2.10. Graduates have the needed skills to work in the company (recruiters' view)

The **skills graduates are expected to possess when applying for or working at the respondents' company (Q6)**, from one scale between 1 and 5, only two skills have a mean value that indicates that, in average, they are seen as a little less than "rather important" (4): *virtual collaboration* (3.5) and *entrepreneurial skills* (3.95). So, employers seem to see all of these skills as essential to possess (Figure 4.2.11).

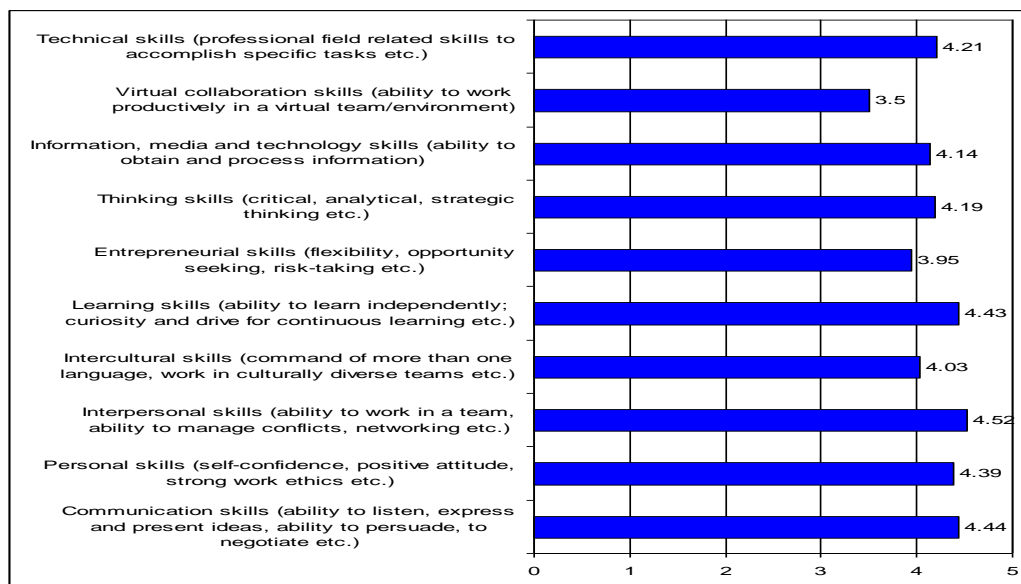


Figure 4.2.11. Skills graduates are expected to possess when applying for or working at the respondents' company

There are significant differences between the **Skills respondents consider students lack the most in order to work in their field (Q7)**, from one scale between 1 and 10 (where 1 is the skill lacked the most and 10 - the least). The skills that, employers have noticed the lack of are communication (3.46), *personal* (4.25) and *interpersonal* skills (4.60). However, the skills employees lack the least are virtual collaboration (7.80), *information media and technology* skills (7.27) and *technical* skills (7.15). There is a considerable difference between these three skills and all the others (Figure 4.2.12).

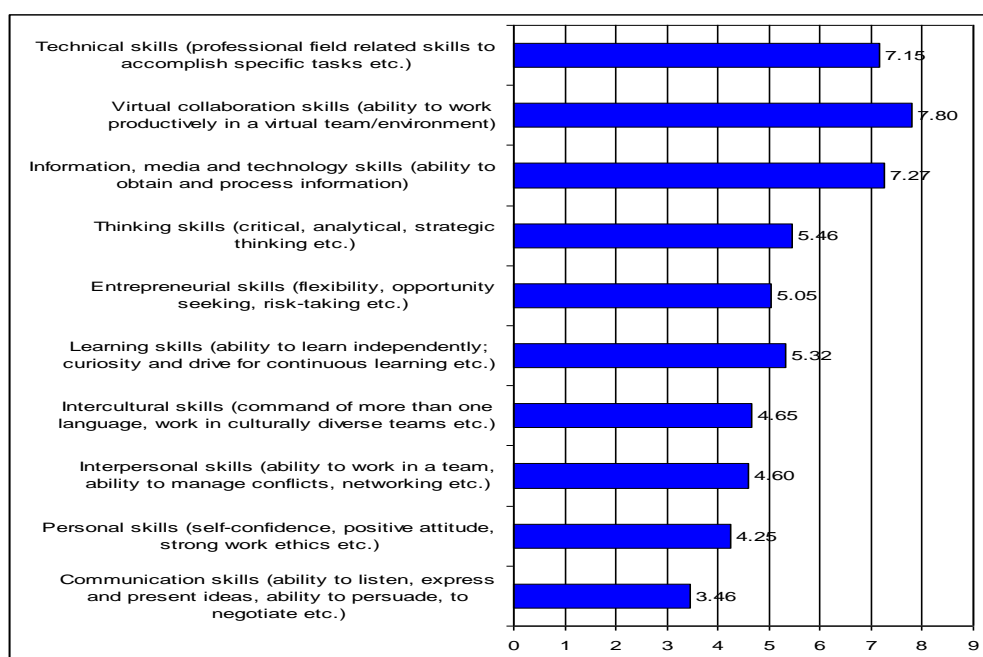


Figure 4.2.12. Skills respondents consider students lack the most in order to work in their field

When asked about **what universities should focus on more to improve the employability of their graduates (Q9)**, in a scale from 1 to 5 (where 1 is more important than 5), between the five presented ways to improve the employability of graduates the measure seen as more important is *prepare courses more relevant to the labour market* (2.46), followed by *include practical tasks and assignments in the courses* (2.21) and *include sector specific work placements as an integral part of the study programme* (2.76). *Provide on-going collaboration with the labour market actors* (3.65) and *provide post-graduation support* (facilitate relations between graduates and companies) (3.66) are seen as less important than the other actions (Figure 4.2.13).

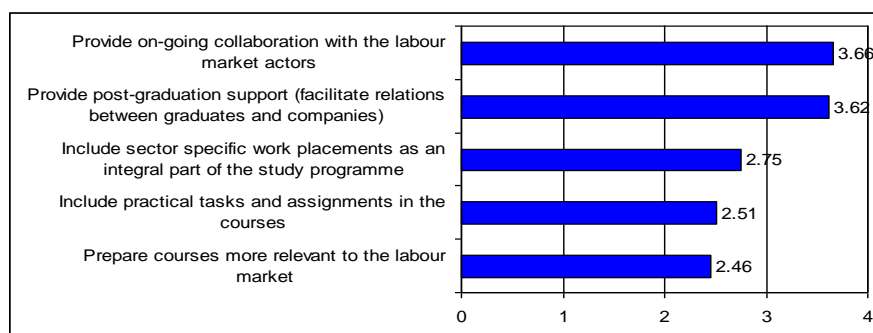


Figure 4.2.13. How can universities improve the employability of future graduates

### Cooperation with universities

About the **interest in cooperation with universities (Q10)**, from the 164 respondents, 95.1% is interested in cooperation with universities. This can be seen as an expected result because answering the survey was already a way to cooperate with universities, so, the employers who see collaboration with universities as fruitful are the most motivated to respond to the survey.

The **preferred way to cooperate with universities (Q11)** chosen for almost all the respondents (83.9%) was *organising internships for students*, followed by *cooperation with career centres* (62.9%). Nearly half of them chose *participation in courses, debates or seminars organised by universities* (48.3%), *offering real-life problem issues for students to solve and/or do research on* (43.4%) and *participation in relevant surveys* (42.7%). Only 31.5% of the respondents see *structured discussions with study programme directors or teachers* as useful (Figure 4.2.14).

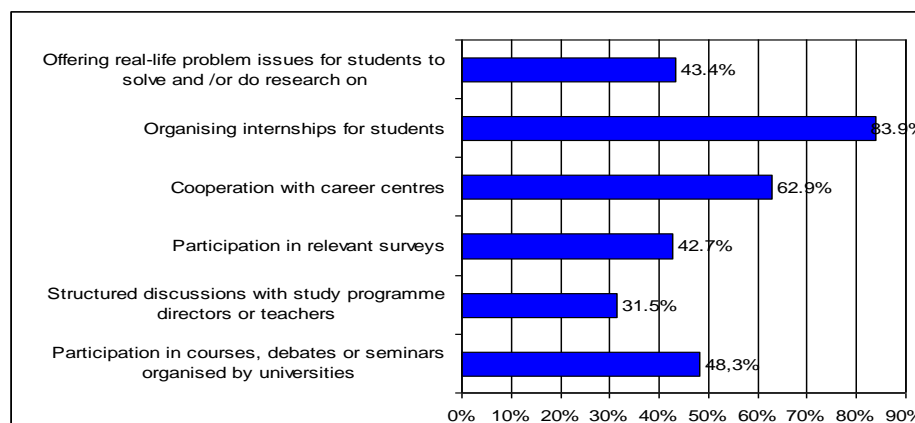


Figure 4.2.14. Cooperation with universities

About the **preferred intensity of the cooperation with universities (Q12)**, most of the respondents (68.6%) prefer cooperating with universities occasionally and sometimes (Figure 4.2.15).

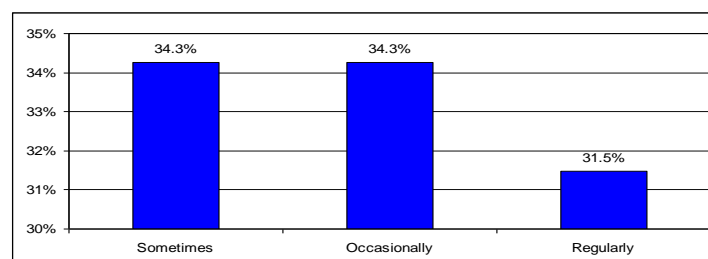


Figure 4.2.15. Preferred intensity of cooperation with universities

The **relevance of having previous international experience to work in the respondent's company (Q14)**, from one scale between 1 and 5, is perceived, in average, near the "neutral point" (3.31). In fact, almost half of the respondents (40.4%) find an *international job experience* as something between "important" and "not important". Nevertheless, majority of the respondents see it as "important" (40.4%) and only 18.4% consider it "not important" (Figure 4.2.16).

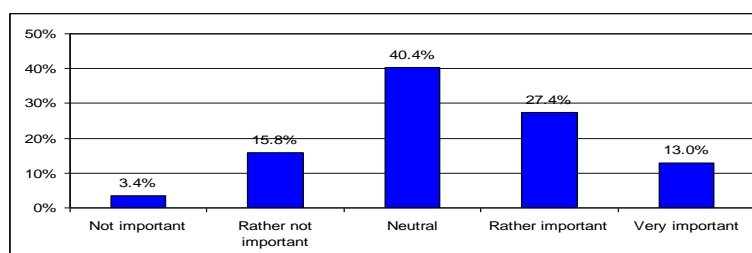


Figure 4.2.16. Relevance of having previous international experience to work in the respondent's company



The **aspects taking into account by companies when recruiting (Q16)**, from one scale between 1 and 5, the factor more taken into account by recruiters is *specific professional skills and knowledge* (4.32), followed by *academic qualifications* (3.82) and *local field-related internship experience* (3.72). The least desired are the aspects related to international experiences: *study experience abroad* (3) and *field-related internship experience abroad* (3.18). The *field-related work experience* is also taken account only sometimes (3.31) (Figure 4.2.17).

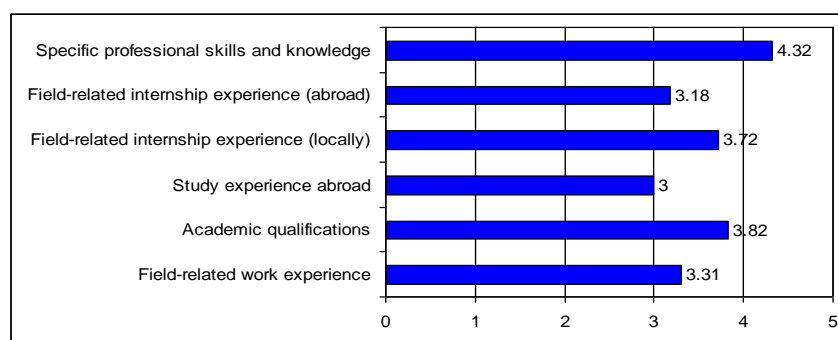


Figure 4.2.17. Aspects taken into account by companies when recruiting

### **Analysis of the mean differences between variables: Differences between countries**

As is illustrated in table 4.2.1 there are several significant differences between the countries from which respondents come from.

According to the field of economic activity, the majority of the companies are from the tertiary sector, and, the only significant differences are between Portugal and Spain and between Portugal and Latvia.

The companies from Portugal think that graduates have the required skills more than the respondents from the remaining countries. It is also in Portugal where the employers expect that students master *entrepreneurial* skills as well as *technical* skills. In turn respondents from Poland expect that students master mostly *thinking* skills. Employers from Spain perceive that students lack most *intercultural* and *entrepreneurial* skills than the remaining employers.

Regarding the measures that universities should undertake to improve their graduates' employability, employers from Spain consider that the variable *prepare courses more relevant to the labour market* is the most likely to improve graduates employability. While, employers from Poland think that the variables *work placements* and *post-graduation support* are the best to help to achieve this goal, the employers from Portugal consider the variable *collaboration with the market labour actors* the better measure to improve graduates employability. On the other hand, cooperation with universities is seen as more important for employers from Latvia than from the remaining employers.

Regarding the important aspects when recruiting, employers from Poland value the following characteristics: *academic qualifications*, *local internship*, *internship abroad* and *professional skills* more than the remaining employers. In turn, employers from Spain think that the variable *study abroad* is more important to their decision of recruitment.

Table 4.2.1. Differences between countries

Variable	Country	N	Mean	SD	Df	F	P	Differences
Field of economic activity	Spain(S)	65	2.80	.40	3	8.15	.000	S>PT* L>PT****
	Latvia(L)	8	3.00	0				
	Poland(PL)	43	2.58	.50				
	Portugal(PT)	86	2.45	.55				
Graduates have the required skills	Spain(S)	62	3.63	.85	3	6.35	.000	S>PL** PT>PL*
	Latvia(L)	9	3.33	.87				
	Poland(PL)	33	3.06	.66				
	Portugal(PT)	71	3.70	.64				
Expected Entrepreneurial skills	Spain(S)	60	3.87	.72	3	6.57	.000	S>L**** PT>L**
	Latvia(L)	9	3.11	1.05				
	Poland(PL)	33	3.79	.82				
	Portugal(PT)	71	4.20	.77				
Expected Thinking skills	Spain(S)	62	3.92	.68	3	4.73	.003	PL>S**** PT>S****
	Latvia(L)	9	4.00	1.50				
	Poland(PL)	33	4.42	.66				
	Portugal(PT)	71	4.35	.78				
Expected Technical skills	Spain(S)	60	4.07	.90	3	3.45	.018	PT>L****
	Latvia(L)	9	3.56	1.42				
	Poland(PL)	33	4.21	.96				
	Portugal(PT)	71	4.41	.71				
Lack Intercultural skills	Spain(S)	62	3.71	2.12	3	4.23	.006	S>PT***
	Latvia(L)	8	4.38	1.77				
	Poland(PL)	33	5.18	2.70				
	Portugal(PT)	71	5.25	3.12				
Lack Entrepreneurial skills	Spain(S)	62	4.69	2.40	3	2.73	.046	
	Latvia(L)	8	6.00	2.20				
	Poland(PL)	33	6.03	2.82				
	Portugal(PT)	71	4.79	2.49				
Improve employability – Courses	Spain(S)	59	2.97	1.40	3	4.14	.007	S>PT**
	Latvia(L)	8	2.13	1.46				
	Poland(PL)	32	2.41	1.24				
	Portugal(PT)	67	2.09	1.52				
Improve employability – Work placements	Spain(S)	59	2.42	1.37	3	4.82	.003	PL>S**
	Latvia(L)	8	2.50	1.31				
	Poland(PL)	32	3.38	1.04				
	Portugal(PT)	67	2.76	.97				
Improve employability – Post-graduation support	Spain(S)	59	3.39	1.13	3	5.43	.001	PL>S** PL>PT**
	Latvia(L)	8	3.88	.99				
	Poland(PL)	32	4.34	1.23				
	Portugal(PT)	67	3.45	1.20				
Improve employability – Collaboration with the market labour actors	Spain(S)	59	3.75	1.37	3	10.66	.000	S>PL* L>PL**** PT>PL*
	Latvia(L)	8	4.00	1.20				
	Poland(PL)	32	2.53	1.39				
	Portugal(PT)	67	4.07	1.18				
Cooperation with universities – Courses	Spain(S)	49	.67	.47	3	5.93	.001	S>PT**
	Latvia(L)	6	.83	.41				
	Poland(PL)	29	.38	.49				
	Portugal(PT)	59	.34	.48				
Important – Academic qualifications	Spain(S)	50	3.00	1.20	3	21.17	.000	PL>S* PT>S*
	Latvia(L)	5	3.20	1.30				
	Poland(PL)	31	4.32	.83				
	Portugal(PT)	60	4.28	.69				
Important –Study experience abroad	Spain(S)	51	3.33	1.07	3	2.98	.034	S>PT****
	Latvia(L)	5	2.60	.89				
	Poland(PL)	31	2.97	.91				
	Portugal(PT)	60	2.77	1.09				
Important – Local internship	Spain(S)	49	3.63	1.01	3	3.04	.031	PL>PT****
	Latvia(L)	5	3.40	1.34				
	Poland(PL)	31	4.16	.64				
	Portugal(PT)	59	3.59	.95				
Important – Internship abroad	Spain(S)	51	3.27	1.25	3	4.38	.006	PL>PT**
	Latvia(L)	5	3.00	1.00				
	Poland(PL)	31	3.74	.96				
	Portugal(PT)	59	2.83	1.18				

Important – Professional skills	Spain(S)	51	4.22	.83	3	3.87	.011	PL>L****
	Latvia(L)	5	3.60	1.14				
	Poland(PL)	31	4.65	.55				
	Portugal(PT)	60	4.30	.72				
Education field needed – Economics	Spain(S)	47	.36	.49	3	4.01	.009	S>PT****
	Latvia(L)	5	.60	1.00				
	Poland(PL)	31	.30	1.31				
	Portugal(PT)	60	.12	1.33				

\* p<0,001    \*\* p<0,005    \*\*\* p<0,01    \*\*\*\*p<0,05

### Differences between the companies' size

For the classification of the dimension of companies was applied the European Commission Recommendation 2003/361/EC of 6 May 2003. This recommendation, according to the number of workers, define the set limits on the size of enterprises considering the categories of *microenterprise (micro)* to companies with fewer than 10 employees, *small enterprise (SE)* to companies with fewer than 50 employees, *medium-sized enterprise (SME)* to companies with fewer than 250 workers and *large enterprise (LE)* for companies with 250 or more employees.

Table 4.2.2. Differences between companies' size

Variable	Number of employees	N	Mean	SD	Df	F	P	Differences
Expected intercultural skills	Micro	31	3.68	.83	3	3.13	.027	LE > micro ****
	SE	42	4.14	.75				
	SME	43	3.93	.96				
	LE	58	4.21	.81				
Lack personal skills	Micro	31	3.52	2.52	3	3.09	.028	micro>LE ****
	SE	42	4.05	2.85				
	SME	42	3.88	1.90				
	LE	59	5.03	2.74				
Lack virtual collaboration skills	Micro	31	8.35	1.84	3	2.74	.045	
	SE	42	7.10	2.95				
	SME	42	8.38	2.14				
	LE	59	7.61	2.35				
Lack technical skills	Micro	31	8.61	2.16	3	4.61	.004	SME>micro **** LE>micro ****
	SE	42	7.83	2.73				
	SME	42	6.19	3.48				
	LE	59	6.58	3.78				
Improve employability – Post-graduation support	Micro	27	2.93	1.39	3	3.96	.009	SME>-micro** LE>micro ****
	SE	40	3.68	1.07				
	SME	40	3.90	1.17				
	LE	59	3.71	1.18				
Important – Internship abroad	Micro	21	2.95	1.32	3	4.35	.006	LE>SE ***
	SE	35	2.80	1.23				
	SME	38	3.05	1.18				
	LE	52	3.63	1.01				
Educational field needed – Engineering	Micro	21	.62	.50	3	3.37	.021	SME>micro **** LE>micro ****
	SE	31	.81	.40				
	SME	37	.89	.32				
	LE	50	.90	.30				

\* p<0,001    \*\* p<0,005    \*\*\* p<0,01    \*\*\*\*p<0,05

As it is possible to observe in table 4.2.2 the dimension of the companies (based in the number of employees), influences their perceptions about the considered variables. The *LEs* expect that graduates master *intercultural skills* more than *micro*. In turn, respondents from *SME* and *LE* felt more than those from *micro* that graduates lack essential *technical skills*.

Regarding the measures that universities should undertake to improve their graduates' employability, the variable *post-graduation support* is most valued by SME and LE than by micro.

Respondents from LE value more an *internship aboard* experience than those from SE. SME and LE need more workers with an *engineering degree* than the micro.

### 4.3.1. Needs Analysis – Academics' Questionnaire

#### Sample

**Country of the Academics (Q1):** There are 301 respondents from seven countries: Poland (195), Spain (51), Portugal (36), Latvia (10), Greece (7), Belgium and Bulgaria (1 respondent each). For statistical proposes, in all the calculus only countries with 10 and more respondents were taken in count, and the remaining will be analysed as "other" (Figure 4.3.1).

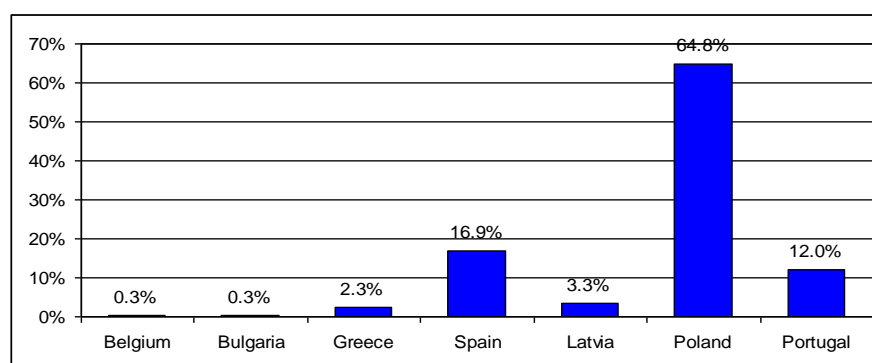


Figure 4.3.1. Country of the Academics

**Academic position of the respondents (Q3):** 33.9% of the respondents are Assistant Professor (102), 25.6% Associate Professor (77), 15.3% Assistant (46), and 10.6% Lecturer (32). For statistical proposes, in all the calculus only positions with more than 30 respondents were taken into account, and the remaining will be analysed as "other" (Figure 4.3.2).

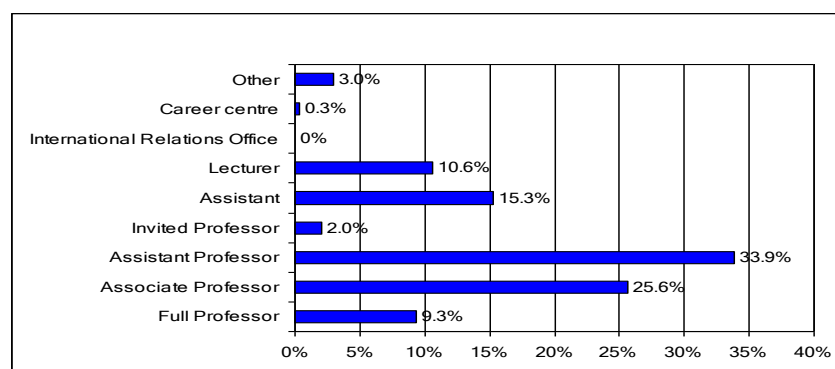


Figure 4.3.2. Position of the respondents

**Academic field (Q4):** Most of academics who responded to the survey (86.2%) are from *business, economic studies and engineering/computing*, the latter being the

most represented in the sample (60 respondents versus 45 from *business* and 58 from *economics*) (Figure 4.3.3).

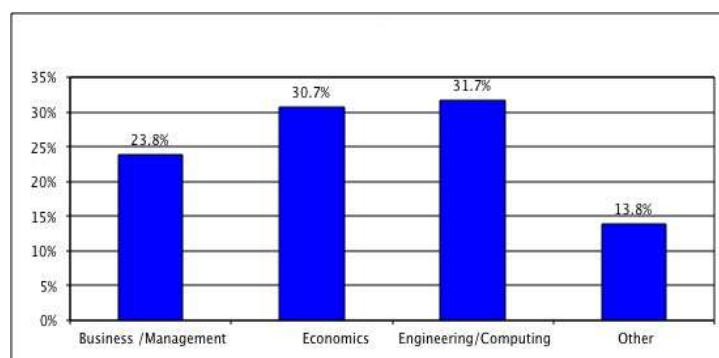


Figure 4.3.3. Academic Field

**Years of experience as a member of the academic staff (Q5):** On average, academics have 15.7 years of experience as a member of the academic staff. The minimum value is less than a year and the maximum is 47 years. Most of respondents (65%) have more than 10 years of academic experience. Only 4% have less than 3 years but 23% of respondents have more than 20 years of experience (Figure 4.3.4).

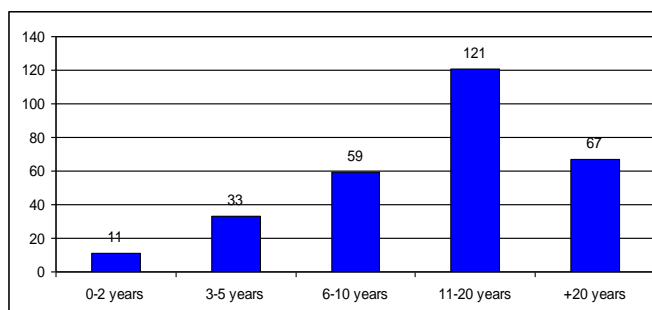


Figure 4.3.4. Years of experience as a member of the academic staff

**Exclusivity in the academic activity (Q6):** 34.5% of respondents (100) have other remunerated activity outside the academia. From those who work also outside the academia, 38.5% (37) have entrepreneurial activities and 36.5% (35) research activities or teach in other institutions (Q7) (Figure 4.3.5).

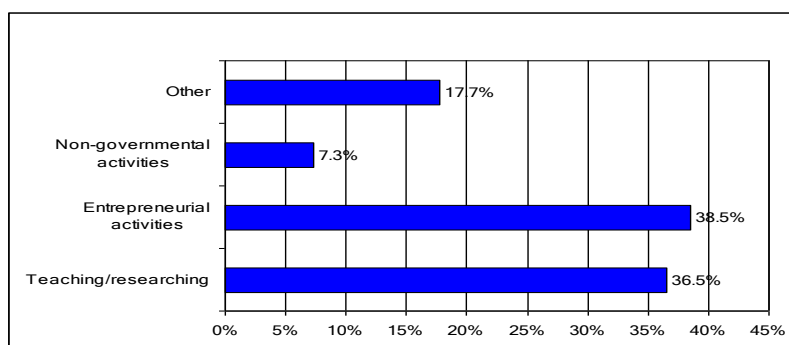


Figure 4.3.5. Exclusivity in the academic activity

**The percentage of day-to-day work interacting with people (students and academics) from other countries (Q8):** most of respondents (62.3%) spend less than

10% of their time interacting with foreigners. Nevertheless, it should be noted that only 14.5% have no regular contact with people from other countries (Figure 4.3.6).

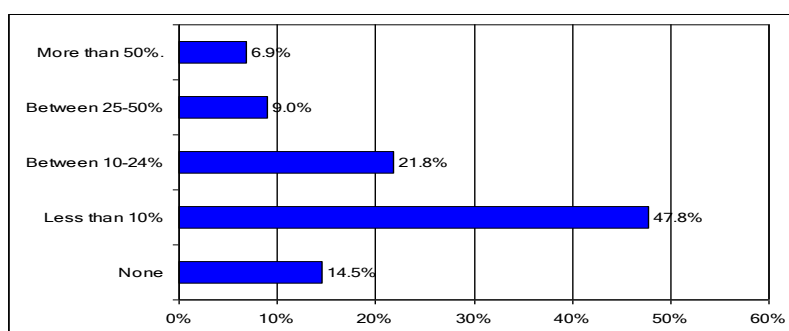


Figure 4.3.6. Percentage of day-to-day work interacting with students and academics from other countries

## Results

### Descriptive statistics

When questioned if **graduates have the skills needed from companies (Q9)**, most of respondents (88%) responded that graduates who have been recruited, in the last three years have the skills required to work in the respective company ("agree" and "somewhat agree"). Nevertheless it should be noticed that most of respondents only "somewhat agree" with that (51.5%). Academics seem to have a positive perception about graduates' competency and skills for the labour market (Figure 4.3.7).

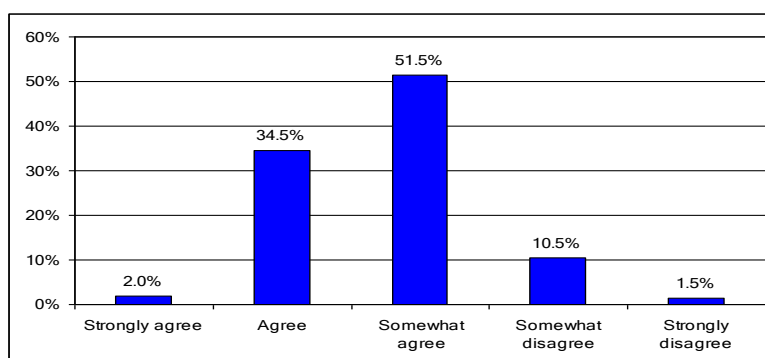


Figure 4.3.7. Academics' perception of the skills of graduates

The **skills graduates are expected to possess when applying for jobs in the fields of business, economics and engineering (Q10)**, from one scale between 1 and 5, all skills were rated, in average, more than 3.7 (near of 4, the "rather important" category). Only two skills have, in average, a value that indicates that they are seen as less than rather important: *virtual collaboration* and *entrepreneurial skills*. The differences between the other skills are small (4.01 and 4.48). The skills seen as the most important are *thinking* (4.48), *communication* (4.46) and *interpersonal skills* (4.45) (Figure 4.3.8).

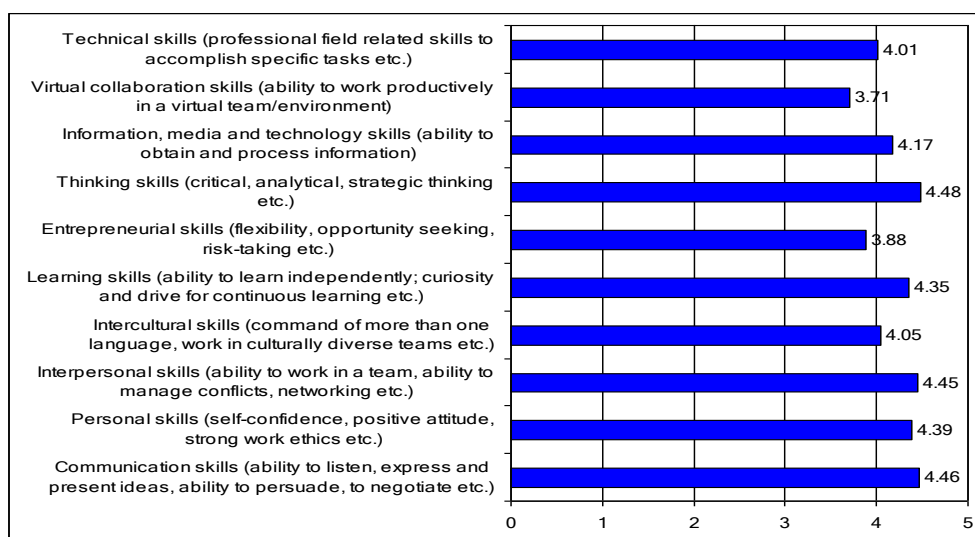


Figure 4.3.8. Skills graduates are expected to possess when applying for jobs in the fields of business, economics and engineering

The **skills academics consider students lack the most in order to work in their field (Q11)**, from one scale between 1 and 10 (where 1 is the skill most lacked and 10 the least), most skills have been rated, in average, near the "neutral" category of 5. The skills that, in average, academics perceived as lacking the most are *communication* (4.34), *personal* (4.38) and *thinking skills* (4.66). The skills seen as less lacking are *virtual collaboration* (7.62), *information media and technology skills* (7.30) and *technical skills* (7.09). There is a considerable difference between these three skills and all the others (Figure 4.3.9).

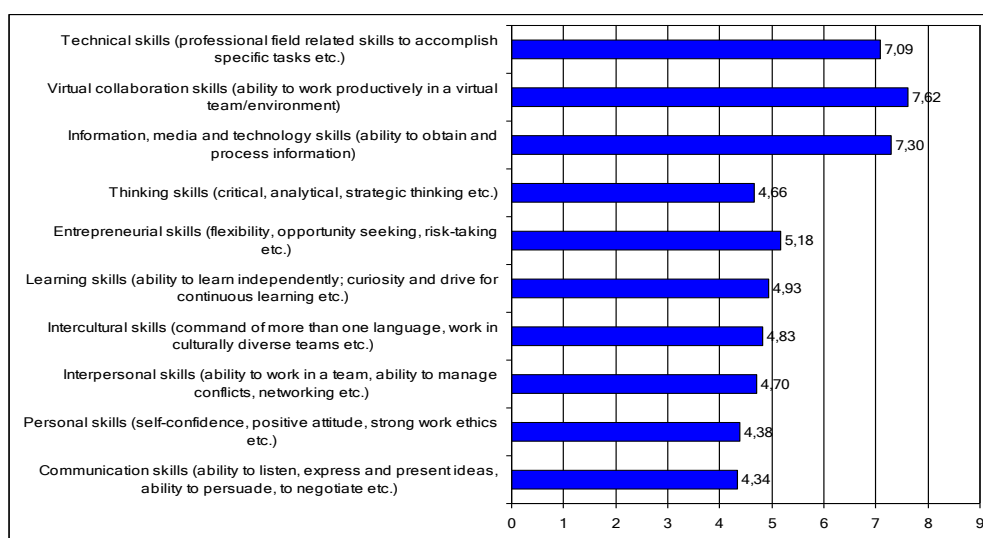


Figure 4.3.9. Skills respondents consider students lack the most in order to work in their field

About the **skills best covered in the current curricula (Q13)**, from one scale between 1 and 10 (where 1 is the skill most covered in the current curricula and 10 the least), it

is possible to identify considerable differences in how academics rated the ten listed skills. In academics' opinion *communication* (3.99) and *personal skills* (4.16) are the two better addressed skills in the current curriculum. Other skills also sufficiently well addressed in the current curriculum are: *interpersonal*, *intercultural*, *learning*, *entrepreneurial* and *thinking* skills. However, there are also skills less addressed such as *virtual collaboration* (7.27) and *technical* (7.15) skills. These results allow one to conclude that there are changes to do in the current curriculum in order to improve these set of skills since only three out of ten skills were considered as currently very well addressed.

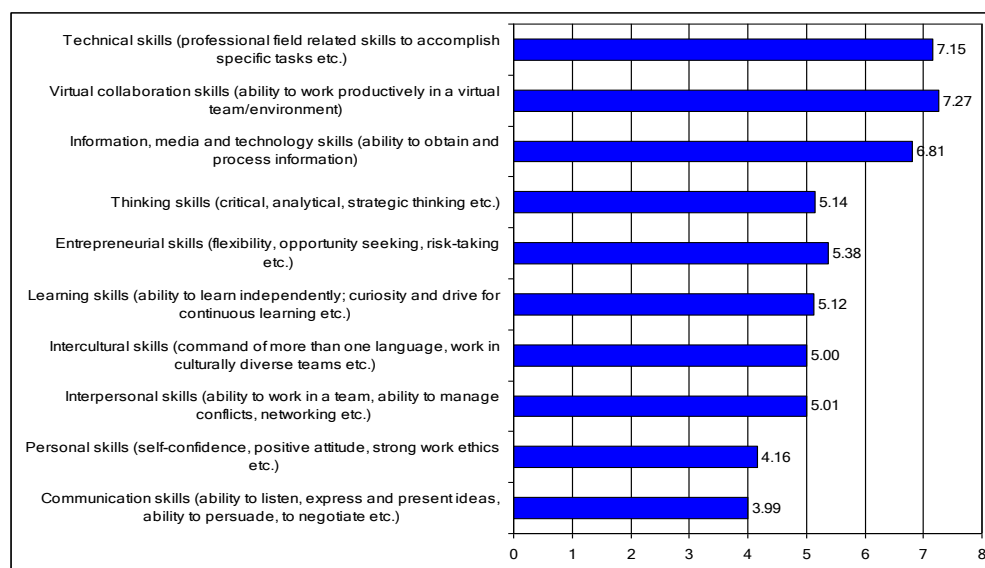


Figure 4.3.10. Skills best covered in the current curricula

**On what measures universities should focus on more to improve the employability of their graduates (Q18)**, from one scale between 1 and 5, all procedures have been rated, in average, in the "rather important" category (4). Although all procedures are rated with very similar values, there is one with an average slightly higher: *including a practical dimension in the courses* (4.42) (Figure 4.3.11).

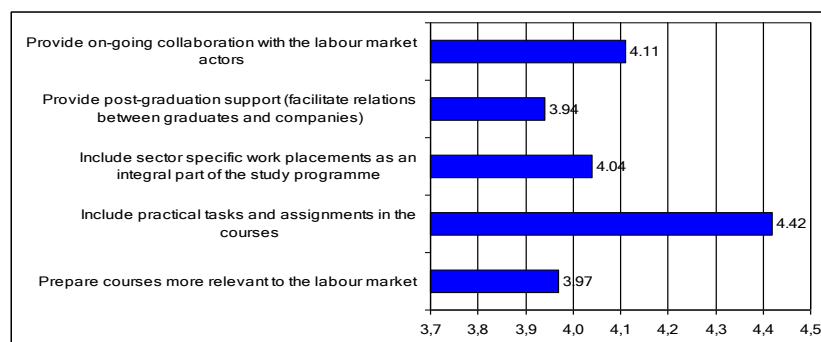


Figure 4.3.11. Universities' measures to improve the employability

The main **aspects taking into account by companies when recruiting (Q19)**, from one scale between 1 and 5, almost all aspects have been rated, in average, near the



"rather important" category (4). The aspects academics perceive as more desired by companies are *specific professional skills and knowledge* (4.24) and *field-related work experience* (4.07). The aspects less desired are *study experience abroad* (3.40) and *field-related internship experience abroad* (3.67) (Figure 4.3.12).

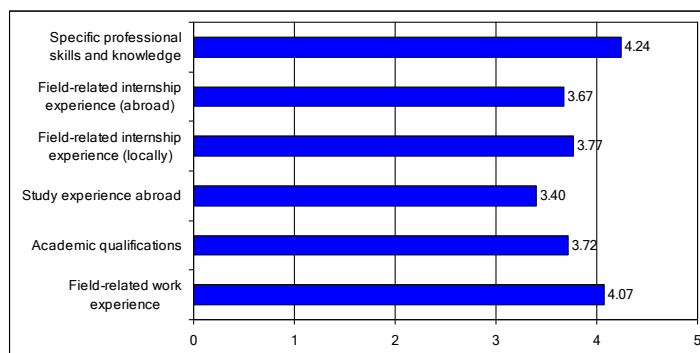


Figure 4.3.12. Aspects taking into account by companies when recruiting

About the **cooperation between universities and companies**, almost all academics (92.2%) consider *cooperation between universities and companies* important (**Q21**) (Figure 4.3.13).

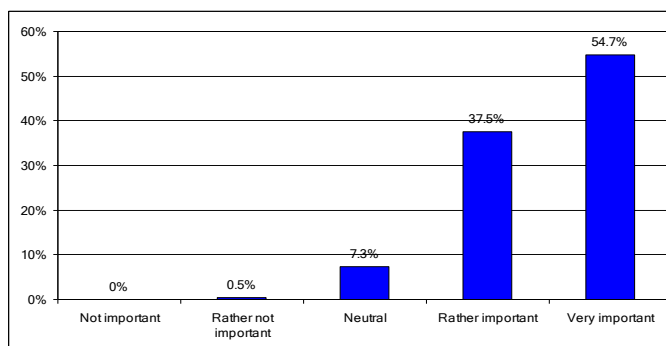


Figure 4.3.13. Level of importance that academics assign to cooperation between universities and companies

Only 10.9% (21) of respondents "never" cooperate with companies at the university level (**Q22**). Almost half (40.1%) cooperate with companies "sometimes", and 25% "rather frequently" or "very frequently" (Figure 4.3.14).

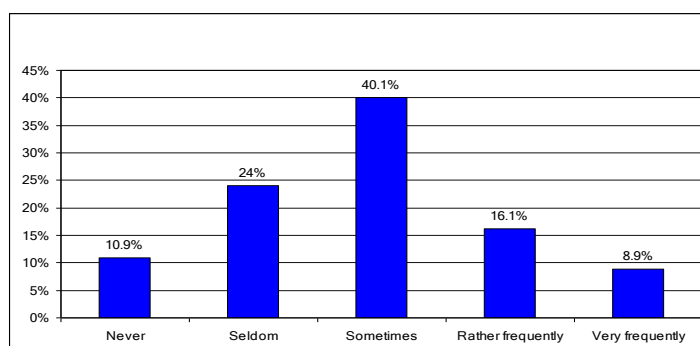


Figure 4.3.14. Frequency of cooperation between companies and universities

Most of academics (85.5%) are interested in cooperating with companies, and 37.7% of those are interested in cooperating regularly (monthly or more) (Q15). Comparing the desire of cooperation with the real cooperation, it is obvious that academics want to cooperate with companies more than they do now: 83.1% cooperate "sometimes", "seldom" or "never", and only 66.2% would prefer cooperating only "sometimes" or "occasionally" (Q16) (Figure 4.3.15).

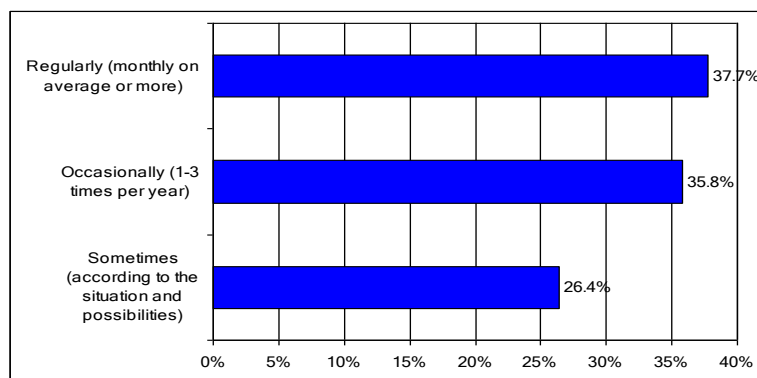


Figure 4.3.15. Desire of cooperation between universities and companies

About the best way to cooperate with companies in order to improve the employability of its graduates (Q17), most academics see as most adequate offering real-life problem issues for students to solve and/or research on (72.3%), organising internships for students (66%) and participating on the employers in courses, debates or seminars organised by universities (62.3%) (Figure 4.3.16).

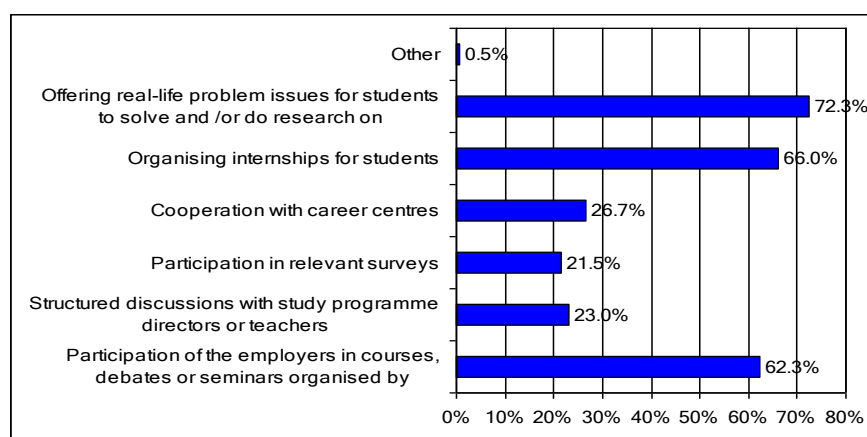


Figure 4.3.16. Best way to cooperate with companies to improve the employability

About the role of an international experience in the job market (Q20), from one scale between 1 and 5, having an international experience is seen by academics, in average, as "rather important" (4.09). In fact, most of the academics (80.2%) find an international job experience as "rather important" (47.4%) or "very important" (32.8%). Only seven respondents (3.6%) perceive the international job experience as "rather not important", and none see it as "not important at all" (Figure 4.3.17).

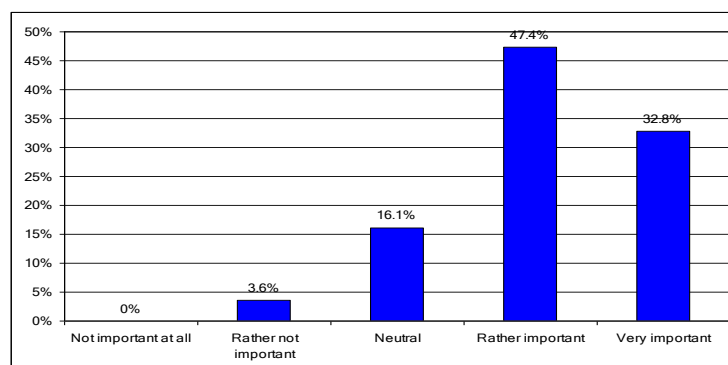


Figure 4.3.17. Role of an international experience in the job market

**Analysis of the mean differences between variables: Differences between countries**

The table 4.3.1 presents the existing significant differences between variables questioned to academics of different countries. There are significant differences in the number of academics that work outside the university. In fact, academics from Poland tend to work more often outside the university than academics from Spain or Portugal. There are also many significant differences between perceptions of academics from different countries. Based on their work experience outside the university, Polish academics maybe know better the workplace reality and are more aware of skills required and, perhaps because of that, they have a less positive perception of the graduates' readiness to work than the academics from Spain and Portugal.

Table 4.3.1. Differences between academics' country

Variable	Country	N	Mean	SD	df	F	P	Differences
Work outside university	Poland (PL)	188	.43	.50	4	7.29	.000	PL>S* PL>PT****
	Spain (S)	49	.10	.31				
	Portugal (PT)	34	.15	.36				
	Latvia (L)	10	.50	.53				
	Other (O)	9	.56	.53				
Students have the skills required	Poland (PL)	124	4.05	.74	4	5.35	.000	S>PL*** PT>PL****
	Spain (S)	40	4.50	.60				
	Portugal (PT)	24	4.54	.66				
	Latvia (L)	7	4.57	.54				
	Other (O)	6	4.00	.63				
Essential - Communication skills	Poland (PL)	124	4.42	.76	4	2.64	.035	PT>O****
	Spain (S)	40	4.38	.54				
	Portugal (PT)	24	4.79	.42				
	Latvia (L)	7	4.43	.79				
	Other (O)	6	3.83	1.47				
Essential - Technical skills	Poland (PL)	123	3.87	.81	4	4.83	.001	S>PL**** S>L**** PT>L****
	Spain (S)	40	4.33	.76				
	Portugal (PT)	24	4.38	.71				
	Latvia (L)	7	3.29	1.11				
	Other (O)	6	4.00	1.55				
Lack - Entrepreneurial skills	Poland (PL)	123	5.71	2.50	4	4.68	.001	S>PL***
	Spain (S)	40	4.18	2.32				
	Portugal (PT)	24	4.33	2.60				
	Latvia (L)	7	3.57	2.82				
	Other (O)	6	6.17	2.48				

Lack - Technical skills	Poland (PL)	123	6.80	3.26	4	4.00	.004	L>S**
	Spain (S)	40	8.35	2.48				
	Portugal (PT)	24	7.38	2.60				
	Latvia (L)	7	3.86	2.67				
	Other (O)	6	7.33	4.18				
Covered – Entrepreneurial skills	Poland (PL)	123	5.57	2.49	4	4.22	.003	PL>S*** PT>S***
	Spain (S)	40	4.05	2.30				
	Portugal (PT)	24	6.25	2.35				
	Latvia (L)	7	6.00	1.53				
	Other (O)	6	6.00	2.61				
Covered – Technical skills	Poland (PL)	123	6.97	3.47	4	3.57	.008	S>PT***
	Spain (S)	40	8.73	2.76				
	Portugal (PT)	24	5.67	3.73				
	Latvia (L)	7	6.00	4.12				
	Other (O)	6	7.50	3.99				
Improve employability – Courses relevant to the market	Poland (PL)	119	4.01	.93	4	3.78	.006	PT>S****
	Spain (S)	39	3.67	.77				
	Portugal (PT)	23	4.39	.66				
	Latvia (L)	7	3.71	.76				
	Other (O)	5	3.20	.84				
Improve employability – Post-graduation support	Poland (PL)	119	3.71	.86	4	6.80	.000	S>PL** PT>PL**
	Spain (S)	39	4.28	.56				
	Portugal (PT)	23	4.43	.59				
	Latvia (L)	7	3.86	.90				
	Other (O)	5	4.00	.71				
Searched by recruiters – Academic qualifications	Poland (PL)	118	3.56	.90	4	7.26	.000	PT>PL* PT>S*
	Spain (S)	39	3.56	.88				
	Portugal (PT)	23	4.52	.51				
	Latvia (L)	7	3.86	.69				
	Other (O)	5	4.40	.89				
Searched by recruiters – Study experience abroad	Poland (PL)	118	3.31	.86	4	3.75	.006	S>PL**** S>PT****
	Spain (S)	39	3.82	.72				
	Portugal (PT)	23	3.13	.87				
	Latvia (L)	7	3.14	.38				
	Other (O)	5	3.00	1.58				
Searched by recruiters – Internship abroad	Poland (PL)	118	3.53	.91	4	4.61	.001	S>PL** S>PT****
	Spain (S)	39	4.15	.75				
	Portugal (PT)	23	3.48	.73				
	Latvia (L)	7	3.29	.49				
	Other (O)	5	3.80	1.10				

\* p<0.001    \*\* p<0.005    \*\*\* p<0.01    \*\*\*\*p<0.05

Portuguese academics see the *communication* and *technical* skills as more essential if compared to the academics from others countries. Spanish perceive *technical* skills as significantly more important than Latvian and Polish academics. In turn, Spanish academics perceive their students as lacking more *entrepreneurial* skills than Polish, and Latvian see their students as lacking more *technical* skills than Spanish academics.

About the skills covered by current curricula, there are significant differences in the perception of Spanish academics about *entrepreneurial* and *technical* skills: Spanish see the *entrepreneurial* skills less covered than Polish and Portuguese, and the *technical* skills more covered than Portuguese.

In the measures that should be followed by universities to improve the employability of their graduates, there are significant differences in two of them: Spanish see as less relevant than Portuguese to *prepare courses relevant to the labour market*; and Polish see as less relevant than Spanish and Portuguese *provide post-graduation support*.

About the aspects taken into account when recruiting new staff, there are significant differences in three of them: Portuguese see the academics qualifications as more important to recruiters than Polish and Spanish; Spanish see having a *study experience abroad* and having done an *internships abroad* as more important to recruiters than Polish and Portuguese academics.

### Differences between academics' field

Table 4.3.2. Differences between academics' field

Variable	Academic field	N	Mean	SD	Df	F	P	Differences
Essential – Technical skills	Business	28	3.89	1.03	3	10.09	.000	Eng>B*** Eng>Ec*
	Economics	35	3.60	.85				
	Engineering	44	4.55	.50				
	Other	16	3.81	.91				
Desirable frequency of the cooperation with companies	Business	23	2.57	.73	3	4.19	.008	B>O****
	Economics	26	2.00	.75				
	Engineering	35	2.09	.78				
	Other	8	1.63	.52				
Work experience	Business	25	3.72	.98	3	5.02	.003	Eng>B**** Eng>Ec****
	Economics	34	3.79	.77				
	Engineering	42	4.36	.82				
	Other	14	4.36	.63				

\* p<0,001    \*\* p<0,005    \*\*\* p<0,01    \*\*\*\*p<0,05

According to the differences between academic's field presented in Table 4.3.2, the academics from *engineering* field are those who see as more important, in a significant way, the *technical skills* as well as *work experience*. *Business'* academics want to *cooperate with companies* more frequently than the other academics. The other variables did not present significant differences between fields of studies.

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

by Elisabeth Pereira, Madalena Vilas-Boas and Cátia Rebelo

When comparing the results obtained by the implementation of surveys several conclusions can be drawn:

- **Skills respondents consider graduates need in order to work in 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 5.1).

Table 5.1 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

- **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 10.

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 5.2).

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

Table 5.2 Lack of skills and competences

Ranking	Students	Employers	Academics
1	Personal	Communication	Communication
2	Interpersonal	Personal	Personal
3	Entrepreneurial	Interpersonal	Thinking
4	Intercultural	Intercultural	Interpersonal
5	Communication	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

The figure 5.1 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 on 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 possess 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 common 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 respondents as essential, therefore, it is vital to solve this gap.

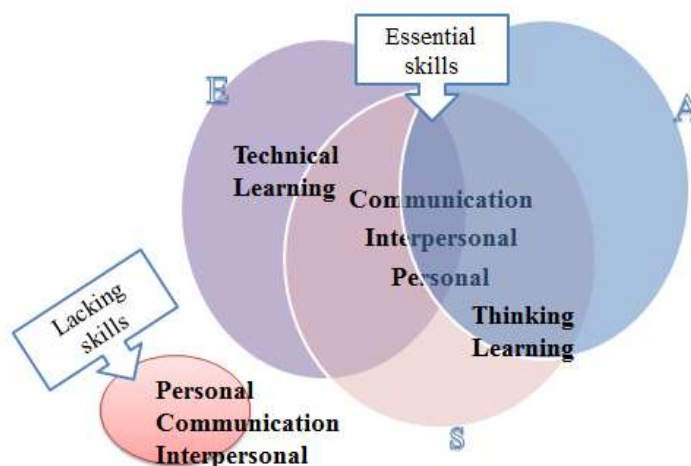


Figure 5.1 Top five essential skills and top three lacking skills according to all the respondents (S=students, E=employers and A=academics)

- **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 media and technology skills*, while students perceive as the least improved *entrepreneurial, virtual collaboration and intercultural skills* (Table 5.3).

Table 5.3 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

- **Measures in which universities should focus 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 5.4).

Between the five presented ways to improve the employability of graduates, the measure employers 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 5.4 Respondents opinions regarding universities' measures to improve the employability of graduates

Ranking	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



- **Ways of cooperation between universities and 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 the 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 choose these two aspects related to *international experiences* as the 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%).

## 6. Conclusions

by Elisabeth Pereira and Madalena Vilas-Boas

According to the Eurostat (2007), the five countries in study recorded medium to high values of youth unemployment. Already in 2007 Greece was the country with the higher rate (22.7%) of youth unemployment, followed by Poland (21.7%). On the other hand, Latvia was the country with the lower rate (10.6%) of youth unemployment. These rates sharply increased in 2011, with exception of Poland that just recorded an increase of 4 percentage points. Portugal and Greece doubled their rates of youth unemployment with a rate of 30.3% and 44.7% respectively; in turn Latvia and Spain more than doubled their rates of unemployment recording 31.0% and 46.2% of youth unemployment respectively. This trend has worsened in 2013, particularly for Greece and Spain that recorded values over 50% in youth unemployment. In Portugal the youth unemployment increased 8 percentage points, Poland increased 1.5 percentage points and Latvia, contrary to this trend, was the only country that reduced their youth unemployment rate in almost 8 percentage points.

Greece experienced in the last decades a gradually worsening in the employability of their academic graduates, being the country with the highest rate of youth unemployment between the studied countries. This serious situation can be in part explained by the skills mismatching between graduates and employer's needs. It is argued that this mismatch is due to lack of student's right orientation but also due to the inability of bringing interested employees and employers together. This idea is corroborated by this research results that found out that universities and, consequently students, should establish a narrower relationship with the labour market through more cooperation actions which will likely improve the graduates' employment and mitigate this problem.

Latvia was the only country in study that was able to reduce their youth unemployment rate recording in 2013 the lower rate (23.2%) of unemployment. And although there is a lack of research in Latvia regarding the graduates' employability, is known that over 70% of the graduates in Latvia are working in their field of study. Nevertheless, this fact related with the research conclusions regarding which skills are most needed in the current labour market will certainly help to boost this value by approximating the current skills that graduates hold with the most needed upon this study: *personal, communication and interpersonal skills*.

Poland in the year of 2013 was, after Latvia, the country with the lower youth unemployment rate (27.3%) between the countries in study. According to the TUL data, their students suggest that their system of education should be improved in order to boost employability, and the mainly students' suggestions were the need for the TUL university to include more practical courses, more reality projects with industry issues and a strength cooperation between the university and the labour market. These three points were equally mentioned in this research which reinforces the importance of cooperation between universities and companies to ease the introduction of a practical dimension in the courses that is currently reduced or in some cases inexistent.

Portugal regarding the youth unemployment is in the middle of the table when compared to the other countries in study, with a rate of unemployment of 38.1% in 2013. Despite of these negative results, the UA panorama is positive and the employment rate of their graduates is about 80%. Nevertheless, there is a data that should be analysed with more detail that is the fact that a significant part of the UA graduates have salaried employment with a fixed term contract. This fact is also reflected in this research that found that student's identified the *entrepreneurial* skill as the third most lacking skill and employers rated it as one of the five skills that students most lack. Therefore, one might say that is really important that the learning materials be able to improve the master the *entrepreneurial* skills in all countries, and, particularly, in the Portuguese case.

Spain is after Greece the country with higher rates (55.5%) of youth unemployment in 2013. As in the Greece case, also in Spain the skills mismatching may lead to these high rates of unemployment. Therefore, once again to reduce youth unemployment it is mandatory to establish a strong relationship of cooperation between universities and industry.

The needs analysis carried out among employers, academic staff and students in the five partner universities of the project consortium, allow to develop the appropriate learning materials, and its contents should correspond to the specific needs identified. The material will be complemented with 'project based tasks' defined by employers and tested during the IP (Intensive Programme) under the organization of the Aristotle University of Thessaloniki, in Thessaloniki, Greece, in the Summer of 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 a framework of ongoing courses, therefore, increasing the employability of students. The 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 by carrying out a survey among employers, students and academia;
- 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;
- (project based tasks – to be included later, based on the new timeline).

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 5.1).

The results of the questionnaires 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 deficiencies in developing *virtual collaboration, technical and information media and 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 **preparation of courses more relevant to the labour market, practical tasks and assignments in the courses** and **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, therefore, setting the bases for the priority areas of the project materials and activities. So, this allowed identifying the main skills priority to be developed in 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 Annual Consortium Meeting 2.

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## Appendixes





## Appendix A1 – Students' Questionnaire

Dear participant,

The aim of the survey is to collect information about the expected skills and current needs of the labour market in the fields of Business and Engineering in order to analyse potential skill mismatches and the relevance of current education programmes.

The survey is conducted in the framework of the #EuropeHome project and the collected data will be analysed to identify the needs of the labour market and to develop relevant materials for students and academic staff.

The responses are anonymous and the questionnaire should take approximately 7 minutes to complete. We thank you in advance for your cooperation.

Best regards,

The #EuropeHome project team

### For students/alumni

#### Background information

##### \*1 Current status

- Current student
- Former student/alumni

##### 2. Which year of studies you are currently in?

- 1st year
- 2nd year
- 3rd year
- 4th year
- 5th year

##### 3. How many years did it take to complete your last degree?

- 1 year
- 2 years
- 3 years
- 4 years
- 5 years
- 6 years
- 7 years
- more than 7 years

**\* 4. Country**

- |   |                                      |   |
|---|--------------------------------------|---|
| <input type="checkbox"/> Belgium        | <input type="checkbox"/> Italy       | <input type="checkbox"/> Romania        |
| <input type="checkbox"/> Bulgaria       | <input type="checkbox"/> Cyprus      | <input type="checkbox"/> Slovenia       |
| <input type="checkbox"/> Czech Republic | <input type="checkbox"/> Latvia      | <input type="checkbox"/> Slovakia       |
| <input type="checkbox"/> Denmark        | <input type="checkbox"/> Lithuania   | <input type="checkbox"/> Finland        |
| <input type="checkbox"/> Germany        | <input type="checkbox"/> Luxembourg  | <input type="checkbox"/> Sweden         |
| <input type="checkbox"/> Estonia        | <input type="checkbox"/> Hungary     | <input type="checkbox"/> United Kingdom |
| <input type="checkbox"/> Ireland        | <input type="checkbox"/> Malta       | <input type="checkbox"/> Serbia         |
| <input type="checkbox"/> Greece         | <input type="checkbox"/> Netherlands | <input type="checkbox"/> Russia         |
| <input type="checkbox"/> Spain          | <input type="checkbox"/> Austria     | <input type="checkbox"/> Other          |
| <input type="checkbox"/> France         | <input type="checkbox"/> Poland      |   |
| <input type="checkbox"/> Croatia        | <input type="checkbox"/> Portugal    |   |

Other (please specify)

**\* 5. City and University**

**\* 6. Field of studies**

- Business/Management Studies
- Economic Studies
- Engineering/Computing
- Other

Other (please specify)

**7. Present degree of studies (or highest acquired degree)**

- Bachelor degree
- Master degree
- Doctoral / PhD Degree
- Other

Other (please specify)

## Employability Skills and Competences

**\*8. What skills and competences do you consider most essential in order to work in your field? Please estimate the importance of the skills listed below.**

	Not important	Rather not important	Neutral	Rather important	Very important
Communication skills (ability to listen, express and present ideas, ability to persuade, to negotiate etc.)					
Personal skills (self- confidence, positive attitude, strong work ethics etc.)					
Interpersonal skills (ability to work in a team, ability to manage conflicts, networking etc.)					
Intercultural skills (command of more than one language, work in culturally diverse teams etc.)					
Learning skills (ability to learn independently; curiosity and drive for continuous learning etc.)					
Entrepreneurial skills (flexibility, opportunity seeking, risk-taking etc.)					
Thinking skills (critical, analytical, strategic thinking etc.)					
Information, media and technology skills (ability to obtain and process information)					
Virtual collaboration skills (ability to work productively in a virtual team/environment)					
Technical skills (professional field related skills to accomplish specific tasks etc.)					

Other (please specify)

---

**\* 9. According to your opinion, what are the skills you lack the most in order to work in your field?**

**Please rank the skills listed below. 1 indicates the skill that you think you lack the most and 10 is the skill that you think you lack the least. Your choices will be sorted automatically and will change position according to the number you choose.**

- Communication skills (ability to listen, express and present ideas, ability to persuade, to negotiate etc.)
- Personal skills (self-confidence, positive attitude, strong work ethics etc.)
- Interpersonal skills (ability to work in a team, ability to manage conflicts, networking etc.)
- Intercultural skills (command of more than one language, work in culturally diverse teams etc.)
- Learning skills (ability to learn independently; curiosity and drive for continuous learning etc.)
- Entrepreneurial skills (flexibility, opportunity seeking, risk-taking etc.)
- Thinking skills (critical, analytical, strategic thinking etc.)
- Information, media and technology skills (ability to obtain and process information)

- Virtual collaboration skills (ability to work productively in a virtual team/environment)
- Technical skills (professional field related skills to accomplish specific tasks etc.)

**\* 10. What are the skills and competences you have considerably improved at the university?**

	Not important	Rather not important	Neutral	Rather important	Very important
Communication skills (ability to listen, express and present ideas, ability to persuade, to negotiate etc.)					
Personal skills (self- confidence, positive attitude, strong work ethics etc.)					
Interpersonal skills (ability to work in a team, ability to manage conflicts, networking etc.)					
Intercultural skills (command of more than one language, work in culturally diverse teams etc.)					
Learning skills (ability to learn independently; curiosity and drive for continuous learning etc.)					
Entrepreneurial skills (flexibility, opportunity seeking, risk-taking etc.)					
Thinking skills (critical, analytical, strategic thinking etc.)					
Information, media and technology skills (ability to obtain and process information)					
Virtual collaboration skills (ability to work productively in a virtual team/environment)					
Technical skills (professional field related skills to accomplish specific tasks etc.)					

Other (please specify)

\_\_\_\_\_

**11. According to your opinion, what should be improved in the curricula and a general study process to increase your employability?**

**Communication and cooperation between companies and universities**

**\* 12. Does your University cooperate with companies?**

- Yes
- No
- I don' t know

**13. According to your opinion, what should universities focus on more to improve the employability of students and future graduates? Please, evaluate the options listed below:**

	Not important	Rather not important	Neutral	Rather important	Very important
Prepare courses more relevant to the labour Market					
Include practical tasks and assignments in the courses					
Include sector specific work placements as an integral part of the study Programme					
Provide post-graduation support (facilitate relations between graduates and companies)					
Provide on-going collaboration with the labour market actors					

**14. According to your opinion, when looking for a job in your field, to what extent the following aspects are taken into account in the companies?**

	Never	Seldom	Sometimes	Often	Always
Field-related work experience					
Academic qualifications					
Study experience abroad					
Field-related internship experience (locally)					
Field-related internship experience (abroad)					
Specific professional skills and knowledge					

Other (please specify)

\_\_\_\_\_

### Employment of graduates

**15. To your mind, what is the role of an international experience in the job market (for instance, studies or work abroad)?**

Not important	Rather not important	Neutral	Rather important	Very important



**16. Have you done or are you currently doing a mobility period outside your home country (exchange studies abroad)?**

- Yes
- No

**17. Have you done or are you currently doing an internship outside your home country?**

- Yes
- No

Thank you for completing the survey!

If you are interested in the results of the survey, please provide your contact information below.

**18. Contact information (email address)**

## Appendix A2 – Employers' Questionnaire

Dear participant,

The aim of the survey is to collect information about the expected skills and current needs of the labour market in the fields of Business and Engineering in order to analyse potential skill mismatches and the relevance of current education programmes.

The survey is conducted in the framework of the #EuropeHome project and the collected data will be analysed to identify the needs of the labour market and to develop relevant materials for students and academic staff.

The responses are anonymous and the questionnaire should take approximately 7 minutes to complete. We thank you in advance for your cooperation.

Best regards,

The #EuropeHome project team

### For employers/company representatives

Background information

#### \*1. Location of the company/organization

- Country:
- City:

#### \*2. Number of employees

- Less than 9 employees
- Between 10-49 employees
- Between 50-249 employees
- 250 and more employee

#### 3. Ownership structure

- Public
- Private
- Mixed

#### 4. Field of economic activity

- Agriculture, forestry and fishing
- Mining and quarrying
- Manufacturing
- Electricity, gas, steam and air conditioning supply
- Water supply, sewerage, waste management and remediation activities
- Construction
- Wholesale and retail trade; repair of motor vehicles and motorcycles
- Transporting and storage
- Accommodation and food service activities

- Information and communication
- Financial and insurance activities
- Real estate activities
- Professional, scientific and technical activities
- Administrative and support service activities
- Public administration and defence; compulsory social security
- Education
- Human health and social work activities
- Arts, entertainment and recreation
- Other services activities
- Activities of households as employers; undifferentiated goods - and services - producing activities of households for own use
- Activities of extraterritorial organizations and bodies

## Employability Skills and Competences

**5. To what extent do you agree with the following statement: "University graduates who were recruited in the last three years had the required/needed skills to work in my company/organization"**

- Strongly agree
- Agree
- Somewhat agree
- Somewhat disagree

**\*6. What skills and competences the university graduates are expected to possess when applying for or working at your company/organization? Please estimate the importance of the skills listed below.**

Not                      Rather not                      Neutral                      Rather                      Very

Communication skills (ability to listen, express and present ideas, ability to persuade, to negotiate etc.)

Personal skills (self- confidence, positive attitude, strong work ethics etc.)

Interpersonal skills (ability to work in a team, ability to manage conflicts, networking etc.)



Intercultural skills (command of more than one language, work in culturally diverse teams etc.)

Learning skills (ability to learn independently; curiosity and drive for continuous learning etc.)

Entrepreneurial skills (flexibility, opportunity seeking, risk-taking etc.)

Thinking skills (critical, analytical, strategic thinking etc.)

Information, media and technology skills (ability to obtain and process information)

Virtual collaboration skills (ability to work productively in a virtual team/environment)

Technical skills (professional field related skills to accomplish specific tasks etc.)

Other (please specify) \_\_\_\_\_

**\*7. What are the skills and competences university graduates lack the most when applying or working for your company/organization?**

**Please rank the skills listed below, where 1 is the skill that graduates lack the most and 10 is the skill graduates lack the least**

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

**8. What academic knowledge (for instance, specific coding, Java software, knowledge about international law, etc.) university graduates lack the most when applying or working for your company/organization?**

**\*9. According to your opinion, what should universities focus on more to improve the employability of the graduates? Please, rank the options listed below.**

- Prepare courses more relevant to the labour market
- Include practical tasks and assignments in the courses
- Include sector specific work placements as an integral part of the study programme
- Provide post-graduation support (facilitate relations between graduates and companies)
- Provide transversal and on-going collaboration with the labour market actors

### **3. Communication and cooperation between Companies and Universities**

**\*10. Are you interested in cooperation with universities?**

- Yes
- No

**\*11. What is your preferred way to cooperate with universities? Please select at least three from the six following items:**

- Participation in courses, debates or seminars organized by universities
- Structured discussions with study programme directors or teachers
- Participation in relevant surveys
- Cooperation with career centres
- Organising internships for students
- Offering real-life problem issues for students to solve and /or do research on
- Other (please specify)

**12. What is the preferred intensity of the cooperation with universities?**

- Sometimes (according to the situation and possibilities)
- Occasionally (1-3 times per year)
- Regularly (monthly on average or more)

**13. If your company/organization is interested in cooperation with universities, please provide contact details:**

**Contact person: (Name, Surname, email address)**

**14. What is the relevance of having previous international experience (for instance, studies or work abroad) to work in your company?**

Not important    Rather not important    Neutral    Rather important    Very important

**15. When recruiting new staff, to what extent are the following aspects taken into account?**

Never    Seldom    Sometimes    Often    Always

Field-related work experience

Academic qualifications

Study experience abroad

Field-related internship experience (locally)

Field-related internship experience (abroad)

Specific professional skills and knowledge

**\*16. From which EDUCATIONAL fields do you mostly need higher education graduates in your company?**

- Business/Management Studies
- Economic Studies
- Engineering/Computing
- Other (please specify)

**\*17. In your estimation, what is the overall percentage of higher education graduates currently employed in your company?**

- None
- Less than 25%
- Between 26 and 50%
- More than 50%

**\*18. What percentage of your day-to-day work involves dealing with people in or from other countries?**

- None
- Less than 10%
- Between 10 and 24%
- Between 25 and 50%
- More than 50%

**Profile**

**\*19. Your position in the company/organization:**

- HR manager/HR director/Head of HR department
- General manager/Director/Managing director
- Other (please specify)

**\*20. Academic qualifications**

- Doctoral degree
- Master degree
- Undergraduate degree
- Less than an undergraduate degree

**\*21. Age**

- Under 30 years old
- 30-39 years old
- 40-49 years old
- 50-59 years old
- 60 years or older

Thank you for completing the survey

If you are interested in the results of the survey, please provide your contact information below.

**22. Contact information (email address)**

## Appendix A3 – Academics' Questionnaire

Dear participant,

The aim of the survey is to collect information about the expected skills and current needs of the labour market in the fields of Business and Engineering in order to analyse potential skill mismatches and the relevance of current education programmes.

The survey is conducted in the framework of the #EuropeHome project and the collected data will be analysed to identify the needs of the labour market and to develop relevant materials for students and academic staff.

The responses are anonymous and the questionnaire should take approximately 7 minutes to complete. We thank you in advance for your cooperation.

Best regards,

The #EuropeHome project team

### 1. University represented

Country:

City:

### \*2. Position

- Full Professor
- Associate Professor
- Assistant Professor
- Invited Professor
- Assistant
- Lecturer
- International Relations Office
- Career Centre
- Other (please specify)

### \*3. Academic field

- Business /Management
- Economics
- Engineering/Computing
- Other (please specify)

### \*4. Years of experience as a member of the Academic staff:

### 5. Do you have any other remunerated work activity outside the academia?

- Yes
- No

**6. If yes, which field is it related to?**

- Teaching/researching
- Entrepreneurial activities
- Non-governmental activities
- Other

**\*7. Please estimate, what percentage of your day-to-day work you interact with people (students and academics) from other countries?**

- None
- Less than 10%
- Between 10-24%
- Between 25-50%
- More than 50%.

**Employability Skills and Competences**

**\*8. To what extent do you agree with the following statement: “University graduates who have been recruited in the last three years had the skills required to work in the respective companies”.**

- Strongly agree
- Agree
- Somewhat agree
- Somewhat disagree
- Strongly disagree

**\*9. According to your opinion, what skills and competences the university graduates are expected to possess when applying for job in the fields of Business and Engineering? Please estimate the importance of the skills listed below.**

	Not important	Rather not important	Neutral	Rather important	Very important
Communication skills (ability to listen, express and present ideas, ability to persuade, to negotiate etc.)					
Personal skills (self-confidence, positive attitude, strong work ethics etc.)					
Interpersonal skills (ability to work in a team, ability to manage conflicts, networking etc.)					
Intercultural skills (command of more than one language, work in culturally diverse teams etc.)					

Learning skills (ability to learn independently; curiosity and drive for continuous learning etc.)					
Entrepreneurial skills (flexibility, opportunity seeking, risk-taking etc.)					
Thinking skills (critical, analytical, strategic thinking etc.)					
Information, media and technology skills (ability to obtain and process information)					
Virtual collaboration skills (ability to work productively in a virtual team/environment)					
Technical skills (professional field related skills to accomplish specific tasks etc.)					

Other (please specify)

---

**\*10. According to your opinion, what skills and competences the university graduates lack the most when entering labour market.**

**Please rank the skills listed below, where 1 is the skill that graduates lack the most and 10 is the skill graduates lack the least.**

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

**\*11. According to your opinion, what academic knowledge (for instance, specific coding, Java software, knowledge about international law etc. ) the university graduates lack the most when applying for job? Please mention at least one**

**\*12. According to your opinion, what are the skills and competences that are covered best in the current curricula at your university?**

**Please rank the skills listed below, where 1 is the skill that graduates lack the most and 10 is the skill graduates lack the least.**

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

**\*13. According to your opinion, what should be improved in the curricula to increase the employability and performance of the graduates?**

### **3. Communication and cooperation between Companies and Universities**

**\*14. Are you interested in cooperation with companies?**

- Yes
- No

**\*15. If yes, what is the desired frequency of the cooperation with companies?**

- Sometimes (according to the situation and possibilities)
- Occasionally (1-3 times per year)
- Regularly (monthly on average or more)

**16. According to your opinion, what is the best way to cooperate with companies in order to improve the employability of your students/graduates? Please, select three from the options listed below.**

- Participation of the employers in courses, debates or seminars organized by universities
- Structured discussions with study programme directors or teachers
- Participation in relevant surveys
- Cooperation with career centres
- Organising internships for students
- Offering real-life problem issues for students to solve and /or do research on
- Other, please specify



**\*17. According to your opinion, what should universities focus on more to improve the employability of the graduates? Please, grade the options listed below.**

Not important      Rather not important      Neutral      Rather important      Very important

Prepare courses more relevant to the labour Market

Include practical tasks and assignments in the courses

Include sector specific work placements as an integral part of the study Programme

Provide post-graduation support (facilitate relations between graduates and companies)

Provide on-going collaboration with the labour market actors

Other (please specify) \_\_\_\_\_

**18. According to your opinion, to what extent are the following aspects taken into account when recruiting new staff?**

	Never	Seldom	Sometimes	Often	Always
Field-related work experience					
Academic qualifications					
Study experience abroad					
Field-related internship experience (locally)					
Field-related internship experience (abroad)					
Specific professional skills and knowledge					

**\*19. According to your opinion, what is the role of an international experience in the job market (for instance, studies or work abroad)?**

Not important at all      Rather not important      Neutral      Rather important      Very important



**\*20. According to your opinion, how important is the cooperation between universities and companies?**

Not important      Rather not important      Neutral      Rather important      Very important

**21. How frequently do you cooperate with companies at the university level?**

Never      Seldom      Sometimes      Rather frequently      Very frequently

Thank you for completing the survey

If you are interested in the results of the survey, please provide your contact information below.

**22. Contact information (email address)**

## Appendix A4 – Differences between variables

Appendix 4.1.1. Differences between countries

Variable	Country	N	Mean	SD	df	F	P	Differences
Essential Communication skills	Portugal (PT)	361	3.47	.64	5	3.37	.005	PT>G**** L>G**
	Poland (PL)	57	3.33	.69				
	Spain (S)	175	3.38	.67				
	Latvia(L)	146	3.56	.70				
	Greece(G)	197	3.29	.74				
	Other(O)	58	3.40	.88				
Essential Interpersonal skills	Portugal (PT)	361	3.50	.62	5	3.95	.002	PT>G**** PT>O***
	Poland (PL)	57	3.35	.72				
	Spain (S)	175	3.42	.70				
	Latvia(L)	146	3.34	.81				
	Greece(G)	197	3.30	.75				
	Other(O)	58	3.16	.83				
Essential Learning skills	Portugal (PT)	361	3.50	.66	5	11.43	.000	PT>S**** PT>L* PT>G* PT>O***
	Poland (PL)	57	3.19	.79				
	Spain (S)	175	3.27	.69				
	Latvia(L)	146	3.19	.81				
	Greece(G)	197	3.05	.82				
	Other(O)	58	3.12	.86				
Essential Entrepreneurial skills	Portugal (PT)	361	2.89	.89	5	2.30	.044	
	Poland (PL)	57	3.16	.68				
	Spain (S)	175	2.82	.82				
	Latvia(L)	146	2.99	.91				
	Greece(G)	197	2.77	.95				
	Other(O)	58	2.86	1.05				
Essential Thinking skills	Portugal (PT)	361	3.54	.65	5	6.77	.000	PT>S* PT>G**** PL>S**** L>S***
	Poland (PL)	57	3.58	.68				
	Spain (S)	175	3.23	.71				
	Latvia(L)	146	3.51	.77				
	Greece(G)	197	3.32	.77				
	Other(O)	58	3.24	.87				
Essential Information, Media and Technology skills	Portugal (PT)	361	3.23	.67	5	4.66	.000	PT>G*** S>G***
	Poland (PL)	57	3.04	.87				
	Spain (S)	175	3.25	.75				
	Latvia(L)	146	3.14	.89				
	Greece(G)	197	2.94	.86				
	Other(O)	58	3.02	1.02				
Essential Technical skills	Portugal (PT)	361	3.37	.68	5	18.15	.000	PT>PL*** PT>S** PT>L* PT>G* PT>O* S>L***
	Poland (PL)	57	2.95	.90				
	Spain (S)	175	3.10	.78				
	Latvia(L)	146	2.76	.96				
	Greece(G)	197	2.86	.89				
	Other(O)	58	2.83	.98				
Lack Personal skills	Portugal (PT)	307	4.80	2.94	5	2.37	.038	G>PL****
	Poland (PL)	57	5.79	3.03				
	Spain (S)	165	4.55	2.95				
	Latvia(L)	121	4.65	2.92				
	Greece(G)	177	4.44	2.97				
	Other(O)	47	4.11	3.02				
Lack Technical skills	Portugal (PT)	307	7.06	3.07	5	3.48	.004	PL>PT*** PL>S****
	Poland (PL)	57	5.40	3.37				
	Spain (S)	165	6.96	3.22				
	Latvia(L)	121	6.48	3.49				
	Greece(G)	177	6.27	3.50				
	Other(O)	47	6.85	3.25				
Improved Communication skills	Portugal (PT)	265	3.58	.99	5	2.25	.048	

	Poland (PL)	52	3.63	.91				
	Spain (S)	153	3.47	1.04				
	Latvia(L)	110	3.77	.92				
	Greece(G)	158	3.64	.99				
	Other(O)	45	3.93	.94				
Improved Intercultural skills	Portugal (PT)	265	3.43	1.07	5	2.37	.038	O>G****
	Poland (PL)	52	3.27	1.07				
	Spain (S)	153	3.37	1.17				
	Latvia(L)	110	3.37	1.08				
	Greece(G)	158	3.30	1.19				
	Other(O)	45	3.91	1.08				
Improved Learning skills	Portugal (PT)	265	4.09	.91	5	8.21	.000	PT>PL*** PT>L**** PT>G* S>G****
	Poland (PL)	52	3.58	1.00				
	Spain (S)	153	3.90	.80				
	Latvia(L)	110	3.74	.92				
	Greece(G)	158	3.54	1.03				
	Other(O)	45	3.84	1.07				
Improved Thinking skills	Portugal (PT)	265	4.00	.96	5	4.45	.001	PT>G*
	Poland (PL)	52	3.73	.93				
	Spain (S)	153	3.75	.94				
	Latvia(L)	110	3.75	.86				
	Greece(G)	158	3.56	1.06				
	Other(O)	45	3.71	1.01				
Improved Information, Media and Technology skills	Portugal (PT)	265	3.88	.91	5	6.35	.000	PT>PL* PT>G** PT>O****
	Poland (PL)	52	3.25	1.08				
	Spain (S)	153	3.71	1.08				
	Latvia(L)	110	3.69	.90				
	Greece(G)	158	3.47	1.02				
	Other(O)	45	3.38	1.19				
Improved Technical skills	Portugal (PT)	265	4.09	.90	5	16.19	.000	PT>PL* PT>S**** PT>L* PT>G* PT>O* S>PL*** S>L**
	Poland (PL)	52	3.19	1.01				
	Spain (S)	153	3.78	.98				
	Latvia(L)	110	3.26	1.05				
	Greece(G)	158	3.61	1.06				
	Other(O)	45	3.40	1.18				
Collaboration University/Companies	Portugal (PT)	265	1.80	.55	5	12.55	.000	PT>PL** PT>L* PT>G**** PT>O**** S>L* G>L*
	Poland (PL)	52	1.35	.81				
	Spain (S)	153	1.63	.75				
	Latvia(L)	110	1.18	.94				
	Greece(G)	158	1.58	.78				
	Other(O)	45	1.44	.79				
Prepare courses more relevant to the labour market	Portugal (PT)	255	3.45	.76	5	5.83	.000	PT>L**** PT>G* PT>O****
	Poland (PL)	52	3.17	.83				
	Spain (S)	153	3.27	.75				
	Latvia(L)	105	3.15	.94				
	Greece(G)	156	3.06	.844				
	Other(O)	44	3.00	1.03				
Practical tasks	Portugal (PT)	255	3.49	.68	5	3.52	.004	
	Poland (PL)	52	3.60	.63				
	Spain (S)	153	3.31	.75				
	Latvia(L)	105	3.57	.72				
	Greece(G)	156	3.34	.78				
	Other(O)	44	3.61	.58				
Internship	Portugal (PT)	255	3.42	.73	5	3.36	.005	PT>G***
	Poland (PL)	52	3.37	.77				
	Spain (S)	153	3.24	.78				
	Latvia(L)	105	3.17	.79				
	Greece(G)	156	3.14	.78				
	Other(O)	44	3.34	.86				
Collaboration with the market	Portugal (PT)	255	3.40	.66	5	7.67	.000	PT>L**

labour	Poland (PL)	52	3.25	.81				PT>G*
	Spain (S)	153	3.20	.83				
	Latvia(L)	105	3.04	.81				
	Greece(G)	156	2.94	.89				
	Other(O)	44	3.20	.90				
Companies search for work experience	Portugal (PT)	255	3.35	.75	5	3.03	.010	PL>G**** L>G****
	Poland (PL)	52	3.58	.78				
	Spain (S)	153	3.29	.78				
	Latvia(L)	105	3.49	.74				
	Greece(G)	156	3.19	.80				
Other(O)	44	3.30	.80					
Companies search for academic qualifications	Portugal (PT)	255	2.97	.89	5	3.92	.002	PT>G**** PL>S**** PL>G****
	Poland (PL)	52	3.17	.90				
	Spain (S)	153	2.71	.98				
	Latvia(L)	105	2.90	.78				
	Greece(G)	156	2.70	.95				
Other(O)	44	2.89	.97					
Companies search for experience abroad	Portugal (PT)	255	2.33	1.03	5	15.31	.000	PT>L**** S>PT* S>PL**** S>L* S>G* O>L**
	Poland (PL)	52	2.41	.92				
	Spain (S)	153	2.95	.86				
	Latvia(L)	105	1.93	.99				
	Greece(G)	156	2.29	1.04				
Other(O)	44	2.66	1.14					
Companies search for internship locally	Portugal (PT)	254	2.48	.86	5	3.49	.004	O>PT***
	Poland (PL)	52	2.69	.70				
	Spain (S)	152	2.69	.79				
	Latvia(L)	105	2.55	.97				
	Greece(G)	156	2.71	.89				
Other(O)	44	2.98	1.00					
Companies search for internship abroad	Portugal (PT)	252	2.39	.90	5	6.83	.000	S>PT** S>L* G>L**** O>L**
	Poland (PL)	50	2.34	.94				
	Spain (S)	152	2.77	.87				
	Latvia(L)	104	2.15	1.07				
	Greece(G)	155	2.53	.94				
Other(O)	44	2.75	1.10					
Role of an international experience	Portugal (PT)	255	3.10	8.26	5	14.93	.000	PL>PT** PL>L* PL>G* S>PT* S>L* S>G* O>L*** O>G***
	Poland (PL)	52	3.56	.57				
	Spain (S)	153	3.56	.65				
	Latvia(L)	105	2.96	.87				
	Greece(G)	156	2.99	.82				
Other(O)	44	3.45	.66					
Done mobility period	Portugal (PT)	255	.45	.44	5	30.05	.000	PL>PT**** S>PT* S>L* S>G* O>PT* O>PL* O>S**** O>L* O>G*
	Poland (PL)	52	.46	.50				
	Spain (S)	153	.67	.47				
	Latvia(L)	105	.33	.47				
	Greece(G)	156	.28	.45				
Other(O)	44	.91	.29					
Done an internship abroad	Portugal (PT)	255	.19	.40	5	3.45	.004	
	Poland (PL)	52	.12	.32				
	Spain (S)	153	.29	.46				
	Latvia(L)	105	.14	.35				
	Greece(G)	156	.26	.44				
Other(O)	44	.32	.47					

\* p&lt;0,001

\*\* p&lt;0,005

\*\*\* p&lt;0,01

\*\*\*\*p&lt;0,05



Appendix 4.1.2. Differences between students in different degrees

Variable	Degree	N	Mean	SD	Df	F	P	Diff.
Essential Communication skills	Bachelor	480	3.38	.71	3	2.71	.044	
	Master	414	3.44	.70				
	Doctoral	56	3.54	.54				
	Other	44	3.64	.57				
Essential Personal skills	Bachelor	480	3.30	.69	3	4.17	.006	M>B****
	Master	414	3.43	.66				
	Doctoral	56	3.45	.63				
	Other	44	3.57	.63				
Essential Learning skills	Bachelor	480	3.19	.78	3	11.32	.000	M>B**** D>B* D>O****
	Master	414	3.34	.74				
	Doctoral	56	3.77	.47				
	Other	44	3.30	.73				
Essential Thinking skills	Bachelor	480	3.31	.80	3	9.96	.000	M>B** D>B* D>M****
	Master	414	3.50	.65				
	Doctoral	56	3.79	.49				
	Other	44	3.43	.66				
Essential Technical skills	Bachelor	480	2.96	.87	3	7.82	.000	M>B** D>B****
	Master	414	3.15	.81				
	Doctoral	56	3.46	.60				
	Other	44	3.14	1.07				
Lack Personal skills	Bachelor	429	4.56	2.93	3	4.87	.002	B>D*** M>D*** O>D****
	Master	359	4.66	2.96				
	Doctoral	48	6.25	2.63				
	Other	38	4.42	3.37				
Lack Entrepreneurial skills	Bachelor	429	5.10	2.44	3	4.45	.004	D>B****
	Master	359	4.77	2.52				
	Doctoral	48	3.81	2.84				
	Other	38	5.18	2.68				
Lack Virtual Collaboration skills	Bachelor	429	6.51	3.08	3	2.68	.046	D>O****
	Master	359	6.43	3.11				
	Doctoral	48	5.40	3.30				
	Other	38	7.21	2.73				
Improved Communication skills	Bachelor	389	3.60	1.00	3	2.71	.044	O>B**** O>M****
	Master	316	3.61	1.00				
	Doctoral	45	3.53	.87				
	Other	33	4.09	.72				
Improved Learning skills	Bachelor	389	3.75	.90	3	3.70	.026	
	Master	316	3.92	1.01				
	Doctoral	45	4.07	.89				
	Other	33	3.97	1.02				
Improved Thinking skills	Bachelor	389	3.70	.95	3	2.92	.033	
	Master	316	3.85	1.00				
	Doctoral	45	4.07	.99				
	Other	33	3.94	.90				
Improved Virtual Collaboration skills	Bachelor	389	3.30	1.08	3	4.39	.004	B>M****
	Master	316	3.08	1.08				
	Doctoral	45	2.87	1.24				
	Other	33	3.42	.97				
Collaboration University/Companies	Bachelor	389	1.50	.82	3	3.30	.020	M>B****
	Master	316	1.66	.70				
	Doctoral	45	1.71	.66				
	Other	33	1.64	.74				
Prepare courses more relevant to the labour market	Bachelor	380	3.16	.86	3	3.36	.019	M>B****
	Master	308	3.35	.79				
	Doctoral	45	3.18	.98				
	Other	32	3.41	.62				
Practical tasks	Bachelor	380	3.37	.76	3	7.37	.000	M>B**** O>B*
	Master	308	3.52	.65				



	Doctoral	45	3.36	.83				O>M****
	Other	32	3.91	.30				O>D**
Internship	Bachelor	380	3.22	.78	3	4.70	.003	O>D****
	Master	308	3.36	.72				
	Doctoral	45	3.09	1.00				
	Other	32	3.59	.71				
Collaboration with the market labour	Bachelor	380	3.06	.89	3	7.04	.000	M>B*
	Master	308	3.32	.68				
	Doctoral	45	3.31	.79				
	Other	32	3.38	.71				
Companies search for specific professional skills and knowledge	Bachelor	380	3.18	.85	3	4.66	.003	M>B****
	Master	307	3.36	.70				
	Doctoral	45	3.44	.79				
	Other	32	3.50	.76				
Done mobility period	Bachelor	380	.46	.50	3	3.32	.019	B>M****
	Master	308	.36	.48				
	Doctoral	45	.33	.48				
	Other	32	.31	.47				
Done an internship abroad	Bachelor	380	.21	.41	3	2.80	.039	
	Master	308	.22	.42				
	Doctoral	45	.38	.49				
	Other	32	.13	.37				

\* p<0,001    \*\* p<0,005    \*\*\* p<0,01    \*\*\*\*p<0,05

## Appendix A5 – Correlations analysis

The data collected was also analysed through the statistical software SPSS through a correlation analysis of the significant correlations between several of the variable under study, in order to quantify the association between two variables. In all correlations the most significant data was underlined in grey to facilitate the data understanding.

In a closer analysis, the essential skills considered by **graduates** to work in their field have all positive correlations between them, while the correlations between lacking skills are mainly negative. There are also significant positive correlations between all the skills seen as considerably improved at the university. In turn, the correlations between skills respondents consider essential to work in their fields and skills they perceive as lacking the most in order to work in their field are half positive half negative.

In the same line, the correlations between skills that **employers** expect graduates to possess when applying for job in their companies are all positive and, as it happened in the graduates correlations the correlations between the lacking skills are mainly negative. In turn, the correlations between the aspects take into account when recruiting new staff are all positive.

Finally, analysing the **academics** correlations, there are significant positive correlations between all the skills that graduates are expected to possess when applying for job in the fields of *business, economics* and *engineering*. Once again, the lacking skills of graduates when entering in labour market perceived by academics have half positive half negative correlations between them. The same happens with the skills best covered in the current universities.

### Students' Questionnaire

Appendix 4.1.3. Skills respondents consider essential to work in their fields (correlation analysis)

Skills	1	2	3	4	5	6	7	8	9
1 – Communication									
2 – Personal	.54**								
3 – Interpersonal	.46**	.41**							
4 – Intercultural	.25**	.31**	.33**						
5 – Learning	.16**	.20**	.25**	.36**					
6 – Entrepreneurial	.33**	.37**	.32**	.33**	.32**				
7 – Thinking	.30**	.27**	.25**	.29**	.41**	.34**			
8 -Information technology	.17**	.21**	.20**	.23**	.38**	.32**	.40**		
9 - Virtual collaboration	.14**	.20**	.27**	.25**	.28**	.37**	.27**	.50**	
10 - Technical	.09**	.16**	.13**	.19**	.35**	.21**	.37**	.42**	.40**

\*\* Correlation is significant at the .01 level (2-tailed)





Appendix 4.1.4. Skills respondents consider they lack the most in order to work in their field  
(correlation analysis)

Skills	1	2	3	4	5	6	7	8	9
1 – Communication									
2 – Personal	.30**								
3 – Interpersonal	.22**	.22**							
4 – Intercultural	-.08*	-.07*	.07*						
5 – Learning	-.10**								
6 – Entrepreneurial	-.25**	-.28**	-.23**		-.23**				
7 – Thinking	-.12**		-.14**	-.24**	.09**	-.13**			
8 - Information technology	-.33**	-.36**	-.37**	-.19**	-.20**				
9 - Virtual collaboration	-.38**	-.47**	-.33**	-.10**	-.35**	.26**	-.22**	.26**	
10 - Technical	-.37**	-.35**	-.41**	-.28**	-.12**			.21**	.21**

\*\* Correlation is significant at the .01 level (2-tailed)

\* Correlation is significant at the .05 level (2-tailed)

Appendix 4.1.5. Skills respondents consider they have considerably improved at the university

Skills	1	2	3	4	5	6	7	8	9
1 – Communication									
2 – Personal	.58**								
3 – Interpersonal	.46**	.41**							
4 – Intercultural	.36**	.30**	.35**						
5 – Learning	.19**	.22**	.25**	.29**					
6 – Entrepreneurial	.34**	.34**	.33**	.37**	.30**				
7 – Thinking	.27**	.28**	.34**	.20**	.38**	.35**			
8 - Information technology	.17**	.17**	.28**	.16**	.33**	.31**	.44**		
9 - Virtual collaboration	.31**	.29**	.36**	.27**	.21**	.45**	.26**	.47**	
10 - Technical	.13**	.13**	.21**	.15**	.29**	.27**	.38**	.39**	.36**

\*\* Correlation is significant at the .01 level (2-tailed)

Appendix 4.1.6. Universities' measures to improve the employability of their graduates  
(correlation analysis)

Measures	1	2	3	4
1 - Course more relevant				
2 - Practical tasks	.44**			
3 – Internship	.38**	.43**		
4 - Post-graduation support	.24**	.26**	.36**	
5 - Collaboration with the market labour	.36**	.31**	.43**	.52**

\*\* Correlation is significant at the .01 level (2-tailed)

Appendix 4.1.7. Aspects taking into account by companies when recruiting

Features searched by recruiters	1	2	3	4	5
Work experience					
Academic qualifications	.22**				
Experience abroad		.13**			
Local internship	.13**	.11**	.38**		
Internship abroad		.09*	.58**	.60**	
Specific professional skills	.30**	.12**		.16**	.13**

\*\* Correlation is significant at the .01 level (2-tailed)

\* Correlation is significant at the .05 level (2-tailed)

Appendix 4.1.8. Correlation between essential skills to work and lack of skills in their fields

Skills	1	2	3	4	5	6	7	8	9	10
1 – Communication		.07*	.08*					-.08*	-.07*	
2 – Personal			.11**					-.09**		
3 – Interpersonal										
4 – Intercultural	.08*		.07*				-.09*	-.07*		
5 – Learning			.09**					-.07*	-.10**	
6 – Entrepreneurial										
7 – Thinking		.08*	.11**		.07*			-.09**	-.11**	-.09**
8 - Information technology									-.07*	
9 - Virtual collaboration					-.07*				.09**	
10 - Technical			.09**							

\*\* Correlation is significant at the .01 level (2-tailed)

\* Correlation is significant at the .05 level (2-tailed)

Appendix 4.1.9. Correlation between essential skills to work and improved skills at the university

Skills	1	2	3	4	5	6	7	8	9	10
1- Communication	.12**		.12**		.09**					
2 – Personal				.11**						
3 – Interpersonal	.08*		.17**		.11**	.09*	.08*	.09*	.09*	
4 – Intercultural			.08*	.16**						
5 – Learning					.17**		.13**	.15**		.12**
6 - Entrepreneurial	.11**	.11**	.10**	.15**		.15**				
7 – Thinking					.15**		.18**			
8 - Information technology			.13**	.10**	.12**	.07*	.12**	.23**	.12**	.12**
9 - Virtual collaboration	.10**		.20**	.17**	.13**	.22**		.15**	.23**	
10 - Technical					.13**	.11**	.09*	.15**	.08*	.26**

\*\* Correlation is significant at the .01 level (2-tailed)

\* Correlation is significant at the .05 level (2-tailed)

Appendix 4.1.10. Correlation between essential skills to work in their fields and university's measures to improve employability

Skills/measures	Courses more relevant	Practical tasks	Internship	Post-graduation support	Collaboration with market labour actors
Communication	.17**	.15**	.13**	.12**	.16**
Personal	.14**	.14**	.18**	.14**	.20**
Interpersonal	.16**	.16**	.24**	.19**	.19**
Intercultural	.10**	.09**	.19**	.18**	.15**
Learning	.16**	.18**	.22**	.16**	.21**
Entrepreneurial	.18**	.14**	.20**	.21**	.24**
Thinking	.15**	.17**	.16**	.15**	.17**
Information technology	.17**	.09**	.13**	.16**	.14**
Virtual collaboration	.11**		.13**	.17**	.19**
Technical	.14**	.10**	.14**	.14**	.20**

\*\* Correlation is significant at the .01 level (2-tailed)

\* Correlation is significant at the .05 level (2-tailed)

Appendix 4.1.11. Correlation between essential skills and aspects taking into account by companies when recruiting

Skills/search	Work experience	Academic qualifications	Experience abroad	Local internship	Internship abroad	Specific professional skills
Communication	.11**			.09*	.08*	.12**
Personal						.14**
Interpersonal			.09*		.08*	.12**
Intercultural	.10**	.09*	.11**	.12**	.13**	.20**
Learning		.09*				.21**
Entrepreneurial		.08*	.10**	.17**	.10**	.15**
Thinking	.13**	.11**				.22**
Information technology	.08*	.09*				.16**
Virtual collaboration			.16**	.12**	.13**	.13**
Technical	.08*	.08*				.23**

\*\* Correlation is significant at the .01 level (2-tailed)

\* Correlation is significant at the .05 level (2-tailed)

Appendix 4.1.12. Correlation between skills lack most and skills improved at the university

Skills Lack \ Skills Improves	1	2	3	4	5	6	7	8	9	10
1- Communication										
2 – Personal						-.09*			-.10**	
3 – Interpersonal						-.09*			-.12**	
4 – Intercultural				.07*		-.09**				
5 – Learning						-.21**			-.11**	
6 – Entrepreneurial	.08*				-.07*	.21**			.12**	
7 – Thinking										
8 - Information technology										
9 - Virtual collaboration						.21**			.17**	
10 - Technical										.11**

\*\* Correlation is significant at the .01 level (2-tailed)

\* Correlation is significant at the .05 level (2-tailed)

Appendix 4.1.13. Correlation between essential skills and universities' measures to improve employability

Skills/measures	Courses more relevant	Practical tasks	Internship	Post-graduation support	Collaboration with market labour actors
Communication					
Personal					
Interpersonal			.08*		
Intercultural					
Learning					
Entrepreneurial					
Thinking					
Information technology			-.08*		-.10**
Virtual collaboration			-.08*		
Technical					

\*\* Correlation is significant at the .01 level (2-tailed)

\* Correlation is significant at the .05 level (2-tailed)

Appendix 4.1.14. Correlation between lack of skills and aspects taking into account by companies when recruiting

Skills/search	Work experience	Academic qualifications	Experience abroad	Local internship	Internship abroad	Specific professional skills
Communication						
Personal	.07*					
Interpersonal						.09*
Intercultural						
Learning			-.11**			
Entrepreneurial					.12**	
Thinking						
Information technology						
Virtual collaboration						
Technical						

\*\* Correlation is significant at the .01 level (2-tailed)

\* Correlation is significant at the .05 level (2-tailed)

Appendix 4.1.15. Correlation between skills improved at the university and universities' measures to improve employability

Skills/measures	Courses more relevant	Practical tasks	Internship	Post-graduation support	Collaboration with market labour actors
Communication					
Personal					
Interpersonal		.10**	.11**	.12**	.07*
Intercultural				.09*	
Learning	.12**			.09*	.11**
Entrepreneurial					
Thinking	.12**				.08*
Information technology	.13**		.09*		
Virtual collaboration					
Technical					

\*\* Correlation is significant at the .01 level (2-tailed)

\* Correlation is significant at the .05 level (2-tailed)

Appendix 4.1.16. Correlation between skills improved at the university and aspects taking into account by companies when recruiting

Skills/search	Work experience	Academic qualifications	Experience abroad	Local internship	Internship abroad	Specific professional skills
Communication		.13**	.14**	.13**	.11**	
Personal			.15**	.12**	.14**	
Interpersonal		.09*	.19**	.14**	.17**	
Intercultural		.16**	.23**	.12**	.18**	
Learning			.08*			.13**
Entrepreneurial		.10**	.19**	.08*	.16**	
Thinking						.12**
Information technology		.10**				.12**
Virtual collaboration		.11**	.22**	.12**	.16**	
Technical			.10**			.09**

\*\* Correlation is significant at the .01 level (2-tailed)

\* Correlation is significant at the .05 level (2-tailed)

Appendix 4.1.17. Correlation between universities' measures to improve employability and aspects taking into account by companies when recruiting

Search/Measures	Courses more relevant	Practical tasks	Internship	Post-graduation support	Collaboration with market labour actors
Work experience	.23**	.24**	.17**	.17**	.18**
Academic qualifications	.12**	.20**	.19**	.11**	
Experience abroad			.08*	.15**	.11**
Local internship		.13**	.10**		.08*
Internship abroad			.09*	.10**	.08*
Specific professional skills	.20**	.20**	.19**	.14**	.20**

\*\* Correlation is significant at the .01 level (2-tailed)

\* Correlation is significant at the .05 level (2-tailed)

Appendix 4.2.1. Skills respondents consider the university graduates are expected to possess when applying for job in their companies

Skills	1	2	3	4	5	6	7	8	9
Communication									
Personal	.65**								
Interpersonal	.66**	.58**							
Intercultural	.36**	.39**	.44**						
Learning	.41**	.41**	.47**	.39**					
Entrepreneurial	.37**	.42**	.38**	.21**	.47**				
Thinking	.42**	.33**	.46**	.32**	.45**	.56**			
Information technology	.35**	.45**	.44**	.29**	.54**	.46**	.47**		
Virtual collaboration	.17*	.18*	.26**	.35**	.27**	.31**	.31**	.42**	
Technical	.26**	.30**	.38**	.26**	.35**	.27**	.38**	.51**	.40**

\*\* Correlation is significant at the .01 level (2-tailed)

\*\* Correlation is significant at the .01 level (2-tailed)

Appendix 4.2.2. Skills respondents consider students lack the most when entering labour market

Skills	1	2	3	4	5	6	7	8	9
Communication									
Personal	.18*								
Interpersonal	.27**								
Intercultural									
Learning				-.32**					
Entrepreneurial	-.19*		-.15*	-.17*					
Thinking	-.16*	-.33**	-.38**	-.18*					
Information technology	-.28**	-.24**	-.25**						
Virtual collaboration	-.26**	-.19*	-.38**					.20**	
Technical	-.21**	-.42**	-.20**		-.18*	-.18*	.17*		

\* Correlation is significant at the .05 level (2-tailed)

\*\* Correlation is significant at the .01 level (2-tailed)

Appendix 4.2.3. Measures in which Universities should focus to improve the employability of graduates

	1	2	3	4	5
1- Courses					
Practical tasks	-.17*				
Work placements	-.34 **				
Post-graduation support	-.27 **	-.39 **			
Collaboration with the labour market actors	-.37 **	-.29 **	-.28 **		

\* Correlation is significant at the .05 level (2-tailed)

\*\* Correlation is significant at the .01 level (2-tailed)

Appendix 4.2.4. Aspects companies take into account when recruiting new staff

	1	2	3	4	5	6
Work experience						
Academic qualifications	.16*					
Study experience abroad	.21 **					
Local internship	.25**		.29**			
Internship abroad	.23**		.58**	.61 **		
Professional skills	.41 **	.33**		.29**	.29**	

\* Correlation is significant at the .05 level (2-tailed)

\*\* Correlation is significant at the .01 level (2-tailed)

Appendix 4.3.1. Skills respondents consider the university graduates are expected to possess when applying for job in the fields of business, economics and engineering

Skills	1	2	3	4	5	6	7	8	9
Communication									
Personal	.49**								
Interpersonal	.55**	.51**							
Intercultural	.38**	.40**	.53**						
Learning	.23**	.40**	.32**	.28**					
Entrepreneurial	.34**	.45**	.45**	.36**	.25**				
Thinking	.26**	.36**	.36**	.23**	.41**	.35**			
Information technology	.29**	.21**	.37**	.31**	.36**	.30**	.30**		
Virtual collaboration	.38**	.41**	.44**	.44**	.29**	.53**	.38**	.34**	
Technical	.33**	.26**	.31**	.22**	.26**	.26**	.27**	.45**	.42**

\*\* Correlation is significant at the .01 level (2-tailed)

Appendix 4.3.2. Skills respondents consider students lack the most when entering labour market

Skills	1	2	3	4	5	6	7	8	9
Communication									
Personal									
Interpersonal	.21**								
Intercultural									
Learning				-.34 **					
Entrepreneurial	.21**			.16*	.78**				
Thinking		-.17*	-.29 **	-.33 **					
Information technology	-.33 **	-.30 **	-.29 **	-.16*		-.19 **			
Virtual collaboration	-.18*	-.23 **		.14*	-.32 **		-.30 **		
Technical	-.40 **	-.21 **	-.32 **	-.28 **		-.22 **		.16**	

\* Correlation is significant at the .05 level (2-tailed)

\*\* Correlation is significant at the .01 level (2-tailed)

Appendix 4.3.3. Skills respondents consider that are covered best in the current curricula at the universities

Skills	1	2	3	4	5	6	7	8	9
Communication									
Personal	.20**								
Interpersonal	.33**	.29**							
Intercultural									
Learning									
Entrepreneurial	-2.2 **								
Thinking	-.15*	-.37 **							
Information technology	-.26 **	-.31 **							
Virtual collaboration	-.27 **	-.23 **							
Technical	-.32 **	-.24 **							

\* Correlation is significant at the .05 level (2-tailed)

\*\* Correlation is significant at the .01 level (2-tailed)

Appendix 4.3.4. Skills respondents consider the university graduates are expected to possess when applying for job-in the fields of business, economics and engineering/skills respondents consider students lack the most when entering labour market

Essential/Lack	1	2	3	4	5	6	7	8	9	10
Communication										
Personal										
Interpersonal										
Intercultural										
Learning										
Entrepreneurial										
Thinking										
Information technology										
Virtual collaboration										
Technical										

\* Correlation is significant at the .05 level (2-tailed)

Appendix 4.3.5. Skills respondents consider the university graduates are expected to possess when applying for job in the fields of business, economics and engineering/Skills respondents consider that are covered best in the current curricula at the universities

Essential/Covered	1	2	3	4	5	6	7	8	9	10
Communication										
Personal										
Interpersonal										
Intercultural										
Learning										
Entrepreneurial										
Thinking										
Information technology										
Virtual collaboration										
Technical										

\* Correlation is significant at the .05 level (2-tailed)

\*\* Correlation is significant at the .01 level (2-tailed)

Appendix 4.3.6. Skills respondents consider students lack the most when entering labour market/Skills respondents consider that are covered best in the current curricula at the universities

Lack/Covered	1	2	3	4	5	6	7	8	9	10
Communication	.20**									
Personal		.21**								
Interpersonal			.25**							
Intercultural				.37**	-.23**	.19**	-.24**			-.18*
Learning					.29**	-.16*			-.27**	
Entrepreneurial						.29**				-.14*
Thinking		-.20**		-.26**	.23**		.36**			
Information technology								.19**		
Virtual collaboration	-.23**				-.14*				.39**	
Technical				-.15*		-.23**				.30**

\* Correlation is significant at the .05 level (2-tailed)

\*\* Correlation is significant at the .01 level (2-tailed)

Appendix 4.3.7. To what extent graduates who have been recruited in the last three years had the skills required to work in the respective companies/skills graduates lack the most when entering labour market

Lacking skills	Students do not have/have required skills
Communication	
Personal	
Interpersonal	
Intercultural	
Learning	
Entrepreneurial	-.15*
Thinking	.14*
Information technology	.15*
Virtual collaboration	
Technical	

\* Correlation is significant at the .05 level (2-tailed)

Appendix 4.3.8. Best way to cooperate with companies to improve employability of graduates

Ways to cooperate	Courses	Discussions	Surveys	Career centres
Discussions	-.25**			
Internships		-.16*	-.31**	-.18**
Real-life problems		-.29**	-.19**	-.13*

\* Correlation is significant at the .05 level (2-tailed)

\*\* Correlation is significant at the .01 level (2-tailed)



Appendix 4.3.9. Best way to cooperate with companies improve the employability of graduates/skills respondents consider the university graduates are expected to possess when applying for job in the fields of business, economics and engineering

Essential skills	Courses	Discussions	Surveys	Career centres	Internships
Communication					.21**
Personal	.19*				
Intercultural		.17*			
Entrepreneurial			.18*		
Thinking				.14*	
Information technology					.21**
Virtual collaboration				.16*	

\* Correlation is significant at the .05 level (2-tailed)

\*\* Correlation is significant at the .01 level (2-tailed)

Appendix 4.3.10. Best way to cooperate with companies to improve the employability of graduates/skills graduates lack the most when entering labour market

Lack skills	Courses	Career centres	Real-life problems
Interpersonal			-.15*
Entrepreneurial	.18*		
Thinking		.15*	

\* Correlation is significant at the .05 level (2-tailed)

\*\* Correlation is significant at the .01 level (2-tailed)

Appendix 4.3.11. Best way to cooperate with companies to improve employability of graduates/skills covered best in the curricula at the universities

Covered skills	Courses	Real-life problems
Communication		.17*
Virtual collaboration	.17*	

\* Correlation is significant at the .05 level (2-tailed)

\*\* Correlation is significant at the .01 level (2-tailed)

Appendix 4.3.12. Best way to cooperate with companies to improve employability of /universities' measures to improve the employability of graduates

Ways to improve employability	Courses	Discussions
Courses more relevant	.19*	.16*

\* Correlation is significant at the .05 level (2-tailed)

\*\* Correlation is significant at the .01 level (2-tailed)

Appendix 4.3.13. Universities' measures to improve the employability of graduates

Ways to improve employability	Courses more relevant	Practical tasks	Work placements	Post-graduation support
Courses more relevant				
Practical tasks	.38**			
Work placements	.33**	.26**		
Post-graduation support			.33**	
Collaboration with the labour market	.16*	.30**	.31**	.46**

\* Correlation is significant at the .05 level (2-tailed)

\*\* Correlation is significant at the .01 level (2-tailed)

Appendix 4.3.14. Universities' measures to improve the employability of graduates /skills respondents consider the university graduates are expected to possess when apply for a job in the fields of business, economics and engineering

Essential skills	Courses more relevant	Practical tasks	Work placements	Post-graduation support	Collaboration with the labour market
Communication	.36**	.46**	.22**	.22**	.37**
Personal	.30**	.17*	.29**	.24**	.28**
Interpersonal	.27**	.20**	.28**	.32**	.23**
Intercultural	.23**		.22**	.32**	.26**
Learning		.15*		.27**	.30**
Entrepreneurial	.29**	.22**	.31**	.23**	.32**
Thinking		.15*		.20**	.19**
Information technology		.16*	.20**	.23**	.23**
Virtual collaboration	.23**	.17*	.16*	.34**	.31**
Technical			.15*	.24**	.24**

\* Correlation is significant at the .05 level (2-tailed)

\*\* Correlation is significant at the .01 level (2-tailed)

Appendix 4.3.15. Universities' measures to improve the employability of graduates / skills graduates lack the most when entering labour market

Lacking skills	Courses more relevant	Practical tasks	Work placements	Post-graduation support	Collaboration with the labour market
Communication					
Personal					
Interpersonal		.18*			
Intercultural		.20**			
Learning					
Entrepreneurial					
Thinking					
Information technology					
Virtual collaboration					
Technical		-.16*			

\* Correlation is significant at the .05 level (2-tailed)

\*\* Correlation is significant at the .01 level (2-tailed)

Appendix 4.3.16. Universities' measures to improve the employability of graduates /skills covered best in the curricula at the universities

Covered skills	Courses more relevant	Practical tasks	Work placements	Post-graduation support	Collaboration with the labour market
Communication					
Personal		.23**			
Interpersonal					
Intercultural					
Learning					
Entrepreneurial					
Thinking		-.14*			
Information technology					
Virtual collaboration					
Technical		-.19**			

\* Correlation is significant at the .05 level (2-tailed)

\*\* Correlation is significant at the .01 level (2-tailed)

Appendix 4.3.17. Aspects taken into account when recruiting new staff

	Work experience	Academic qualifications	Study experience abroad	Local internship	Internship abroad
Work experience					
Academic qualifications					
Study experience abroad		.17*			
Local internship			.42**		
Internship abroad			.44**	.65**	
Specific professional skills	.31**			.24**	.26**

\* Correlation is significant at the .05 level (2-tailed)

\*\* Correlation is significant at the .01 level (2-tailed)

Appendix 4.3.18. Aspects taken into account when recruiting new staff/skills respondents consider the university graduates are expected to possess when applying for job in the fields of business, economics and engineering

Essential skills	Work experience	Academic qualifications	Study experience abroad	Local internship	Internship abroad	Specific professional skills
Communication		.15*	.15*			
Personal						
Interpersonal			.15*	.16*		
Intercultural			.19**		.21**	
Learning						.19**
Entrepreneurial		.18*	.18*	.19**	.22**	
Thinking		.20**				.20**
Information technology				.34**	.29**	.18*
Virtual collaboration		.20**				
Technical		.23**		.18*	.16*	.17*

\* Correlation is significant at the .05 level (2-tailed)

\*\* Correlation is significant at the .01 level (2-tailed)

Appendix 4.3.19. Aspects taken into account when recruiting new staff/skills graduates lack the most when entering labour market

Lacking skills	Work experience	Academic qualifications	Study experience abroad	Local internship	Internship abroad	Specific professional skills
Communication						
Personal					.21**	
Interpersonal		.15*	-.19**	-.18*	-.17*	
Intercultural						
Learning		-.18*				
Entrepreneurial			-.18*		-.22**	
Thinking						
Information technology						
Virtual collaboration						
Technical						

\* Correlation is significant at the .05 level (2-tailed)

\*\* Correlation is significant at the .01 level (2-tailed)

Appendix 4.3.20. Aspects taken into account when recruiting new staff/skills covered best in the curricula at the universities

Skills	Work experience	Academic qualifications	Study experience abroad	Local internship	Internship abroad	Specific professional skills
Communication						
Personal						
Interpersonal						
Intercultural			-.16*			
Learning					.16*	
Entrepreneurial			-.21**		-.17*	
Thinking						-.15*
Information technology						
Virtual collaboration						
Technical			.32**			

\* Correlation is significant at the .05 level (2-tailed)

\*\* Correlation is significant at the .01 level (2-tailed)

Appendix 4.3.21. Role of an international experience/skills respondents consider the university graduates are expected to possess when applying for job in the fields of business, economics and engineering

Essential skills	Role of an international experience
Communication	.22**
Personal	
Interpersonal	.25**
Intercultural	.25**
Learning	
Entrepreneurial	.24**
Thinking	
Information technology	.20**
Virtual collaboration	.21**
Technical	

\*\* Correlation is significant at the .01 level (2-tailed)

Appendix 4.3.22. Role of an international experience/skills graduates lack the most when entering labour market

Lacking skills	Role of an international experience
Communication	
Personal	
Interpersonal	
Intercultural	
Learning	
Entrepreneurial	-.27**
Thinking	
Information technology	
Virtual collaboration	
Technical	

\* Correlation is significant at the .05 level (2-tailed)

\*\* Correlation is significant at the .01 level (2-tailed)

Appendix 4.3.23. Role of an international experience/skills covered best in the curricula at the universities

Covered skills	Role of an international experience
Communication	-.19**
Personal	
Interpersonal	
Intercultural	
Learning	
Entrepreneurial	
Thinking	
Information technology	
Virtual collaboration	
Technical	.17*

\* Correlation is significant at the .05 level (2-tailed)

\*\* Correlation is significant at the .01 level (2-tailed)

Appendix 4.3.24. Universities' measures to improve the employability of graduates/ aspects taken into account when recruiting new staff

	Work experience	Academic qualifications	Study experience abroad	Local internship	Internship abroad	Specific professional skills
Courses more relevant						
Practical tasks	.17*					
Work placements						
Post-graduation support						
Collaboration with the labour market					.22**	

\* Correlation is significant at the .05 level (2-tailed)

\*\* Correlation is significant at the .01 level (2-tailed)

Appendix 4.3.25. Universities' measures to improve the employability of graduates/role of an international experience

	Role of an international experience
Courses more relevant	
Practical tasks	
Work placements	.15*
Post-graduation support	.20**
Collaboration with the labour market	.21**

\* Correlation is significant at the .05 level (2-tailed)

\*\* Correlation is significant at the .01 level (2-tailed)

Appendix 4.3.26. Universities' measures to improve the employability/ graduates who have been recruited in the last three years had skills required to work in the respective companies

	Graduates have/not have required skills
Courses more relevant	
Practical tasks	
Work placements	
Post-graduation support	.20**
Collaboration with the labour market	

\* Correlation is significant at the .05 level (2-tailed)

\*\* Correlation is significant at the .01 level (2-tailed)



Appendix 4.3.27. Aspects taken into account when recruiting new staff/role of an international experience

	International experience
Work experience	
Academic qualifications	
Study experience abroad	.34**
Local internship	.16*
Internship abroad	.41**
Specific professional skills	

\* Correlation is significant at the .05 level (2-tailed)  
 \*\* Correlation is significant at the .01 level (2-tailed)

Appendix 4.3.28. Aspects taken into account when recruiting new staff/graduates who have been recruited in the last three years had skills required to work in the respective companies

	Have/not have required skills
Work experience	
Academic qualifications	.16*
Study experience abroad	
Local internship	
Internship abroad	
Specific professional skills	

\* Correlation is significant at the .05 level (2-tailed)  
 \*\* Correlation is significant at the .01 level (2-tailed)

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