



Final report

The Employability of Higher Education Graduates: The Employers' Perspective

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Executive summary

The point of departure of this study was a lack of information on the employers' perspective on what makes graduates employable. The study uses an innovative approach to look at employers' preferences for graduates, namely by simulating the selection process with hypothetical candidates. This so-called conjoint study with responses from more than 900 employers in nine different European countries was complemented with in-depth interviews with employers as well as focus groups of relevant stakeholders in 12 European countries. The study provides insight into:

- the major trends on the labour market for Higher Education (HE) graduates and how these trends impact the skills that HE graduates are supposed to have,
- the key characteristics that employers look at when they recruit HE graduates,
- the skills that graduates should possess in order to be employable,
- how higher education institutions (HEIs) can best enable students to develop employable profiles,
- the dilemmas that HEIs face when improving employability.

The most important conclusions of this study are:

Professional expertise is paramount

Professional expertise (i.e. subject-specific knowledge and expert thinking) is the most important skills set that affects graduates' employability. But there are concerns among employers about the extent to which higher education curricula develop specific knowledge alongside more general academic skills. In the view of many employers the best way to integrate and further develop such skills is by incorporating 'real' work practices in the curriculum, e.g. through real or simulated case studies.

Interpersonal skills are becoming more and more important

The conjoint analyses show that interpersonal skills (communication skills, teamwork skills et cetera) are almost as important as professional expertise. In order to be employable, a graduate needs interpersonal skills and below average levels cannot be compensated for – even by the best grades or the most relevant study field. This is because, employers fear the potential negative consequences of poor interpersonal skills on the team as a whole and thus the impact on organisational goals.

Work experience gets graduates the job interview

The conjoint analysis clearly shows the importance of relevant work experience for graduates' chances to get invited to a job interview. In the interview stage, relevant work experience can compensate for having lower grades or a field of study which does not fit the job closely.

Some room for specialisation: innovative/creative and commercial/entrepreneurial skills

In the domains of professional expertise and interpersonal skills all graduates need to have at least an average level. This is not the case for two other domains: innovative/creative skills and commercial/entrepreneurial skills. Employers indicate that in an organisation or in a team it might be enough to have just one or two persons who are strong in innovative/creative skills or commercial/entrepreneurial skills, so here there is clear room for specialisation among graduates.

Strategic/organisational skills are needed for long-term career opportunities

In the main, employers generally do not expect recent HE graduates to demonstrate strategic/organisational skills. However, when it comes to graduates' long-term career opportunities such skills are viewed positively and are linked to development in the role.

International orientation is a feather in the cap when the cap is good

Globalisation requires graduates to become more and more internationally oriented. Employers appreciate foreign experience and this can tip the balance in selecting a graduate for interview or in a recruitment decision, although employers will still look more closely at relevant work experience and field of study. It is interesting to note that having done part of the study abroad is more appreciated than having done the entire study abroad in some countries. Despite the Bologna process and the international recognition of study programmes, employers in some countries still hesitate to hire graduates with a foreign diploma. This may be related to perceived differences in quality or with unfamiliarity with the foreign degrees.

General academic skills are well developed

General academic skills do not rank highly on the agenda of employers. This does not mean that they are not important, but rather that employers expect graduates who have completed HE to have sufficient general academic skills. The results from the in-depth interviews and the focus groups give no indication that these skills are lacking.

No difference in what is needed for short-term employability and long-term employability

One dilemma HE is facing is whether it should focus on providing an entry ticket to the labour market or on ensuring long-term employability. The overall view in the focus groups is that this is a deceptive distinction. The skills that are needed to ensure short-term employability are no different from the skills that are needed to increase employability in the long run.

Underperformance comes at great cost for employers as well as graduates

The study shows that the costs related to underperformance of graduates is much higher than the possible benefits associated with above average performance. Graduates who belong to the top 25% of their group have a 10-15% higher productivity compared to the average graduate. But the graduates who belong to the bottom 25% of their group have on average a 20-30% lower productivity than the average graduate. A low skill level in one domain can therefore not easily be compensated: not by the same graduate being excellent in another skill domain, nor by having other team members who are excellent in this skill domain. As a result, employers search for traditional signals (e.g. the study programme, the reputation of the university, the grades) that a job candidate possesses at least an average level of skills. Likewise, having a low skill level in any domain severely reduces graduates' employability.

Time is precious, so spend it well

Identifying certain skill needs does not imply that all these skills need to be developed in the same way in HE. Some, such as innovative or entrepreneurial skills, may be developed during working life, but can be stimulated through HE. Moreover, the results of the study indicate that not every student needs to have the same set of skills. Determining the balance between the common set of skills required for every student and the set of skills that lend themselves for specialisation on top of this common core is key to developing, high quality relevant curricula for HE.



1 Introduction

Human capital as the driving force of socio-economic development

In recent decades there has been an increased awareness of human capital as one of the driving forces of economic development. Policy makers have realized the importance of investing in education and training as a way of improving the existing stock of skills. This emphasis on skills is reflected in the European Union (EU) 2020 strategy, which aims at 'smart, sustainable, inclusive growth' through improved coordination of national and European policy. Key targets include increasing higher education (HE) attainment so that by 2020 40% of young people have successfully completed a HE study, 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 key stakeholders to better anticipate changes in the skills needed for the future, to realize a better matching between available skills and those required in the labour market, and to bridge the gap between the worlds of education and work. A number of practical measures have been devised to help achieve these aims, such as the European Vacancy Monitor, the Skill Forecasts undertaken by the European Centre for the Development of Vocational Training (CEDEFOP), and the development of a European Framework for key competences¹ for lifelong learning in which the key competences needed by all to succeed are outlined.

Role of the universities

Universities are accorded a special role in bridging the gap between the worlds of education and work. The European Commission (EC) has placed universities at the heart of Europe's so-called knowledge triangle of research, education and innovation, which are seen as the key drivers of a knowledge-based society. For some time now, HE policy has had an increasingly European dimension, with its own distinct influence over national education policies. The Bologna declaration and the subsequent initiatives put HE in the centre of EU policy with the goal to create a 'Europe of knowledge' (Lisbon European Council, March 2000). The different EC policy measures are summarized in the EU Strategy for the Modernisation of HE (European Commission, 2011a).

Despite the growth in HE, the Bologna process and associated curriculum reforms aiming to make HE more transparent, there are still major problems in the match between labour market needs and the skills of HE graduates. The report 'Employment in Europe 2010' (European Commission, 2010a) points out that young new labour market entrants have borne the brunt of the economic crisis, increasing the risk of long-term unemployment for significant numbers of new entrants. The report breaks a lance for more effective labour market inclusion by, among other things, raising the skill base of young people through improved access to training, life-long learning and career guidance for all employees as set out in the flagship initiative 'Agenda for new skills and jobs' (European Commission, 2010b). The latest version of 'Employment and Social Developments in Europe 2012' (European Commission, 2013) shows that unemployment rates have reached new peaks with a growing divergence between North and South. Especially in the South the match between skills and jobs has worsened and countries are urged to invest more in education and training, active labour market policies and the creation of high-skilled jobs in growth sectors of the economy.

1. Throughout this document we will use the term skills instead of competence. The term skills subsumes knowledge, skills and competences as defined in the European Qualification Framework.

Results from graduate surveys

Results from the recent REFLEX (Allen and Van der Velden, 2011a) and HEGESCO (Allen, Pavlin and Van der Velden, 2011) projects show that even before the economic crisis all was not entirely well in the labour market for HE graduates. Although these studies conclude that HE graduates in most European countries fare well in the labour market, they also showed that there is clearly room for improvement, particularly for the more than one out of four working graduates who indicate that their skills are insufficiently used. The problems are more pronounced for graduates in certain countries and fields of study than in others. A large part of the problems faced by at-risk groups is due to general economic conditions affecting the demand for their particular qualifications in their particular country. This has even been worsened by the recent economic crisis that led to an increase of temporary employment and a bumping-down of graduates in low quality jobs, leading to a general underutilisation of their skills. At the same time, there is reason to believe that at least part of the problem lies with the education systems themselves, and the manner in which these are attuned to the needs of the economy and society. Only 50-60% of graduates across all countries and fields of study indicated that their study programme clearly succeeded in providing a good basis for entering the labour market and for developing new skills on the job, while some 15-20% indicated that their study programme clearly failed to do so. Even more striking was the assessment of the study programme as a basis for developing entrepreneurial skills: only 20% of all graduates found that their study programme had clearly succeeded in this respect. As a general nuance, it is worth to note that the crisis may have deepened these problems, but HE graduates are still better off than their peers at lower levels. There are even strong indications that the medium and lower educated are more strongly hit by the crisis than the higher educated (ROA, 2013).

21st century skills

The shift from an industrial society to an information and knowledge society has far-reaching implications for the kinds of skills needed by the workforce and the population at large (see Voogt and Pareja Roblin, 2010 and Allen and Van der Velden, 2012). This shift was already noted in the early 1990s by Reich (1992), who remarked on the increased need for both knowledge and socio-communicative skills. Voogt and Pareja Roblin (2010) assert that although the changes are taking place in widely differing sectors of the economy, there is a common set of core '21st century skills' that are needed in virtually all domains. The European Commission (2007) defines eight key competences: communication in the mother tongue, communication in foreign languages, mathematical competence and basic competences in science and technology, digital competence, learning to learn, social and civic competences, sense of initiative and entrepreneurship, and cultural awareness and expression. Similar lists have been found in other documents. These are the skills that according to many are needed in order to function adequately in, and make a useful contribution to the knowledge and information society in the 21st century. As Allen and Van der Velden (2012) have pointed out, these 21st century skills do not exist in a vacuum, but form part of a complete interdependent package comprising basic and specific skills as well as 21st century skills.

The need to bring in the employer's perspective

Why is it important to get the employer's perspective? We already know much about the European labour market for HE graduates from the graduates' point of view from studies such as REFLEX and HEGESCO. These studies not only shed light on the strong and weak points of HE and the effects of these on labour market outcomes, they also

provide an indirect view of the employers' perspective. By asking graduates which skills they are expected to possess, the role they are expected to play in their organization and so on, we can gain a first impression of what European employers expect from HE graduates. But this view is strongly filtered through the viewfinder of the graduate, and may in some respects be biased or incomplete. For this reason, it is important to get a direct view as well. Two major initiatives have been taken in this respect: the EU Forum for University Business Dialogue, and the Eurobarometer on Employer's perception of graduate employability. Moreover, the EC has asked CEDEFOP to pilot the first pan-European survey on employers' skill needs in 2013.

The summary report of the Fourth European University-Business Forum (European Commission, 2011b) presents some conclusions and recommendations concerning the cooperation and dialogue between universities and the business world. Much of the forum focused on procedural issues, such as the need to be patient and engage in dialogue to overcome major cultural and operational differences between universities and business against the need for concrete action and progress. However, the forum also addressed more substantive issues, such as the need to enhance the relevance of fundamental scientific research as a source of inspiration for commercially profitable innovations, the importance of physical proximity between HE institutions and businesses (e.g. by locating businesses within university campuses or universities within industrial parks). There was a lot of emphasis placed on governance issues, such as how to remove legal or organizational barriers to flexible cooperation. An important point raised was the fact that businesses are accustomed to rapid change under Darwinian-type evolution, while universities have until recently led a more sheltered existence and are as such less flexible as a rule.

The Eurobarometer survey on 'Employers' perception of graduate employability' (2010) also yielded interesting and useful results. Almost all skills listed in the survey were considered to be very or rather important when recruiting HE graduates. The most important skills according to employers are team working skills, followed by sector-specific skills, communication skills, computer skills, being able to adapt to new situations, ability in reading/writing and analytical and problem-solving skills. A strong majority of employers reported that graduates had the skills required to work in their company, with the highest satisfaction levels being reported for computer skills. Concerning skills and capabilities likely to be required in the future by graduates, basic skills such as numeracy, literacy and computer skills were regarded as most important. Foreign language skills were rated as more important in the private than in the public sector, and unsurprisingly this applied especially to recruiters with international contacts. In addition to skills, most employers stressed the importance of work experience of graduates, and a high proportion named sector-specific work placements as a key path for universities to improve the employability of their graduates. Very few graduate recruiters reported that they frequently cooperated with universities on curriculum design and study programmes, and more than half reported that they had never done so. More than a quarter of employers also recruit people from other European countries.

This study and the research questions

These dialogues and survey results give a first impression on the employers' perspective, but we need to go beyond. This study aims to provide further insight in what employers' needs are and how they evaluate the HE graduates' employability. In particular the study aims to provide answers to the following research questions:

1. What are the major trends on the labour market for HE graduates and how do these trends impact the skills that HE graduates are supposed to have?
2. What are the key characteristics that employers look at when they recruit HE graduates? Are these characteristics comparable across countries and across occupational fields?
3. What are the skills that graduates should possess in order to be employable? Are these skills comparable across countries and across occupational areas?
4. How can higher education institutions (HEIs) best enable students to develop employable profiles? What are the dilemmas that HEIs face when improving employability?

To answer these questions, we carried out a *literature review* to identify the major trends on the labour market and the implications of these trends for the skills that HE graduates are supposed to have. In the next phase we carried out a *conjoint study* among 903 employers in nine countries. In this survey we simulated a selection process using vignettes with hypothetical job candidates, all HE graduates. These hypothetical candidates applied for a specific entry position in the firm. The simulated selection process consisted of two steps. In the first step employers were asked to select possible candidates for a job interview based on information on the typical characteristics that can be found in a letter of application or curriculum vitae (CV), like degree, field of study, grade point average (GPA) or relevant work experience. In the second step, employers got information on the job applicant's skills based on a report from an assessment centre. In this step employers were asked to choose which candidate they would hire. The quantitative study was complemented with *individual in-depth interviews* with national and international employers in the same nine countries and an additional three countries in which we could not conduct the conjoint study. These interviews replicated the simulation process in the quantitative survey, and enabled us to obtain a better picture of the considerations underlying employers' choice of certain profiles and the ranking of attributes and skills. The interviews also allowed to gather information on the optimal skill mix the pool of graduates within an organization needs to possess. Finally we conducted *focus groups* of relevant stakeholders in the same 12 countries. In the focus groups participants discussed what HEIs should and could do to improve graduate employability. More specifically they discussed dilemmas HEIs face when improving employability.

Structure of the report

In the next chapter we will elaborate the research questions and present the research methodology. In chapter 3 we present the results of the conjoint study and the in-depth interviews concerning the importance of certain attributes and how these signal a graduate's employability. Chapter 4 then concentrates on the relevant skills that graduates are supposed to have and to which extent deficits in a certain type of skill can be compensated by a surplus in another type of skill. Here we also discuss the extent to which skills are thought of as an individual characteristic or whether employers are looking for a certain mix of skills in a team. Chapter 5 presents the results of the focus groups concentrated on three dilemmas HEIs face when improving employability. Chapter 6 concludes and presents the policy implications. The results of the literature review on the major trends on the labour market and the implications of these trends for the skills that HE graduates are supposed to have are presented in Appendix 1. More technical information about the survey is presented in Appendices 2 and 3.



2 Study design

2.1 Elaboration of the research questions and the general research strategy

Research question 1: Trends and development of required skills

One of the biggest challenges facing policy makers is that the goalposts are shifting all the time while the game is being played. Quantitative empirical research can provide solid information on the skill needs of today, but cannot guarantee that these will still be accurate in the future. This gap can be filled to some extent by skill forecasting models such as those developed by CEDEFOP, but these are only as accurate as the information that is fed into them can allow. There is a need to have advance warning on which way the wind is likely to blow in the future, and one of the most interesting sources of information on this is likely to come from the group whose livelihood depends on getting this right: business organizations. This is why the main elements of this study, the conjoint study and the in-depth interviews, focused on employers, mainly from the private sector.²

In preparation of the conjoint study, we conducted a literature review on the current trends on the graduate labour market. We identified six different trends and show how they are related to six skill domains. In the in-depth interviews with employers we discussed the relevance of these skills domains and explored whether any skill domain was lacking. We also discussed possible deficits regarding these skill domains and the developments of skill needs in the coming decade. The results of these findings are presented in Appendix 1.

Research question 2: Key characteristics that affect graduates' employability

The most fundamental element of any attempt to enhance employability of graduates is to understand what it is that makes them employable. Initial employment chances immediately after graduation are likely to be heavily based on characteristics that are easily observable, such as the level and field of the study programme, the prestige of the HEI from which the person graduated, grades, relevant work experience and international experience. It is therefore of great importance to understand in more detail which attributes employers are seeking when they recruit HE graduates, and in particular which perceived attributes are likely to tip the scale in favour of one graduate compared to another.

We already know from graduate surveys which attributes are related to success on the labour market. A major drawback, however, is that these characteristics are usually correlated and it is hard to identify the relative contribution of each characteristic. Moreover, self-selection and unobserved heterogeneity mask the actual relevance of certain attributes, for example if we look at the relevance of having a matching field of study or a specific degree. In the conjoint study we were able to fully control the composition of the profiles, ensuring that the correlation between the attributes is zero.

A conjoint study gives good estimates of an employer's preferences, but does not identify what drives these choices. In the in-depth interviews we therefore replicated a part of the conjoint study, asking employers to think aloud while making their choices. We then interviewed them about these choices. The results of both the conjoint study and the in-depth interviews concerning the key attributes that affect graduates' employability are presented in Chapter 3.

2. As we shall see later in the conclusions, employers are actually not much better in predicting future skills requirements than other actors and certainly not better than forecasting models.

Research question 3: Which are the key skills that graduates need to possess to be employable?

The value of the attributes mentioned above is only as high as that of the skills and other personal characteristics that underlie them. That is, employers value attributes such as grades or work experience because they expect that these attributes are closely associated with relevant, productive skills. A general problem in most employer surveys is the lack of forced choice in evaluating different characteristics. If we look at employers' wishes, they seem to want a "Jack-of-all-trades". For example, the Eurobarometer shows that for 11 listed skills, a large majority of employers find all of these skills somewhat or very important, ranging from 67% for foreign language skills to 98% for team working skills. We see similar results in other surveys (see for example Arthur, Brennan and De Weert, 2007). In practice, however, these Jacks-of-all-trades hardly exist, and most people have their strong and weak points. It is here that employers are forced to choose and these choices reflect the true significance of certain skills. By applying a choice based conjoint study, we followed this more realistic approach and asked employers explicitly to choose between different, imperfect graduate profiles.

The conjoint analysis conducted also enabled us to explore questions important for HE policy, such as whether there is a one-size-fits-all profile of THE ideal graduate who perfectly matches the needs of European employers in general, or whether some types of skills are well suited in some contexts and other skills in others. In addition, in the in-depth interviews we were able to discuss with employers to what extent they are looking for the right mix of graduates with different skills rather than a single profile of the perfect graduate. We gathered information on what employers regard as the optimal skill mix within teams and what this means for the skills that different team members need to possess. The results of the analyses concerning the skills that affect graduates' employability are presented in Chapter 4.

Research question 4: What can HE do to enhance employability?

Understanding the attributes and skills that make graduates employable is not the only issue to be addressed. A different issue is to what extent HEIs should provide all skills that are required in the world of work. Some skills may be better developed outside than inside education. Education is faced with demands in many areas, ranging from knowledge in the traditional disciplines, interdisciplinary knowledge, as well as the 21st century skills, and meeting these demands takes time. By definition however, time is limited. Even if we could agree that it is possible to increase the workload for students in HE, there is a natural limit to the number of hours that can be spent in an academic year. This makes time in education precious, and we need to think very carefully how that time should be apportioned. When deciding the amount of time that should be spent on each of the different skill domains we need to ask ourselves the following questions:

- Is HE the most efficient environment to develop these skills?
- Are these skills more important to develop than other skills that could be developed in HE?
- What would happen if we did not develop these skills in HE? Can these skills be developed in the workplace as well?

In the focus groups we specifically addressed this issue, as well as two other dilemmas HEIs face when they want to increase graduate employability, namely the importance and role of specific knowledge in developing graduates' skills and the need to strike a balance between developing skills that improve short-term employability and skills that

improve long-term employability. The results of the discussions in the focus groups are presented in Chapter 5.

Overarching philosophy

This brings us to an overarching philosophy for this study. There are no simple solutions: the multiplicity of demands means that choices will need to be made. It is important to confront the employers participating in the study with this tension, and to make sure that they are aware that ideal candidates do not exist and that usually job applicants have both strong and weak points. Only when we put employers in a situation where they have to make a choice between those kind of 'realistic' candidates, are we able to get a better view on the relative importance of graduates' attributes. Similar problems arise as to how HEIs should develop themselves. There are many demands on HE and the responses can be conflicting. Therefore choices need to be made on the kind of skills that need to be developed in HE.

A second aspect of our overarching philosophy is that we should not seek to find out which skills THE European graduate needs to possess or what THE European employer wants, but rather that we should look to find the optimal mix of skills that the pool of graduates needs to possess and what the palette of employers require from HE graduates. In other words, we need to look not only at the micro level but also at the meso or macro level. At the macro level there might be differences between (groups of) employers in what they require from HE graduates, and within teams (the meso level) there might be a need for different types of graduates. If this is the case, the crucial question is not which skills each graduate needs to possess, but what the optimal mix of skills is in the pool of graduates.

A third aspect of our overarching philosophy is the role of specific skills. The importance of specific skills is often underestimated in employer surveys. By nature these surveys focus on more general skills. This is reinforced by the notion that in a rapidly changing world specific skills can quickly become obsolete. This has strengthened a tendency for policy to focus more on key competences, such as general academic skills (e.g. learning to learn). However, the extent of this focus on generic skills may be misplaced. In the words of the German psychologist Weinert: "Over the last decades, the cognitive sciences have convincingly demonstrated that context-specific skills and knowledge play a crucial role in solving difficult tasks. Generally, key competences cannot adequately compensate for a lack of content-specific competences" (Weinert, 2001: p.53). As alluded to above, in this study we explicitly look at both the general skills, as well as the field-specific skills that are needed in order to function well.

2.2 Literature review

We felt it to be necessary to start the project with an analysis of the relevant developments on the labour market for HE graduates and to explore what this means for the skills that graduates need to possess in order to stay employable. The desk research largely built on the literature review that was carried out by two of the authors, Humburg and Van der Velden (2013). By and large this study followed this literature review and enriched this with information from the in-depth interviews and focus groups. The results of this desk research is reported in Appendix 1.

The main goal of the desk research was to identify the most important skills that affect graduates' employability and consequently to inform the choice of attributes and attribute levels for the conjoint study. The desk research therefore directly fed into the development of the graduate profiles used in the conjoint study, the development of the interview protocols for the in-depth interviews with the employers as well as the discussion of the results in the focus groups.

Humburg and Van der Velden identify six trends and six related skills which are summarized in Table 2.1. Each of these skill domains encompass multiple aspects.

Table 2.1

Trends, skill domains and aspects of the skills

Trends	Skills	Aspects of skills
Knowledge society	Professional expertise	<ul style="list-style-type: none"> ■ Specific body of knowledge ■ Ability to apply expert thinking ■ General academic skills (e.g. analytical thinking, reflectiveness)
Increasing uncertainty	Flexibility	<ul style="list-style-type: none"> ■ Ability to deal with changes and uncertainty ■ Ability to learn new things ■ Employability skills (e.g. the willingness to invest in further education and training, and the ability to plan and take responsibility for one's own career)
ICT revolution	Innovation and knowledge management	<ul style="list-style-type: none"> ■ Innovative/creative skills (creativity, curiosity) ■ Network and strategic ICT skills ■ Implementation skills
High Performance workplaces	Mobilization of human resources	<ul style="list-style-type: none"> ■ Interpersonal skills (communication skills, teamwork skills) ■ (Self-)management skills (working within budget and time restrictions, leadership) ■ Strategic-organizational skills
Globalization	International orientation	<ul style="list-style-type: none"> ■ Foreign language skills ■ Intercultural skills
Change of the economic structure	Entrepreneurship	<ul style="list-style-type: none"> ■ Ability to identify commercial risks and opportunities ■ Cost awareness ■ Ability to turn an idea into a successful product

Not all of these aspects could be addressed in the conjoint study though, and we therefore needed to focus on the most relevant ones. Table 2.2 presents an overview of the skills tested in the conjoint study and the in-depth interviews and the definition of each of these skills given to the respondents. For the domain 'professional expertise', we decided to concentrate on the first component (specific body of knowledge) and the third component (general academic skills) as these are expected to be acquired in HE. Note that we will refer to 'specific body of knowledge' as 'professional expertise' in the remainder of this report, while the third component of professional expertise will be referred to as 'general academic skills'. See appendix 1 for more detailed information on the construction of these skills.

Table 2.2

Definition of skills tested in the conjoint study and in-depth interviews

Skill domain	Skill measured in study	Definition
Professional expertise	Professional expertise (specific body of knowledge)	Knowledge and skills needed to solve occupation-specific problems
	General academic skills	Analytical thinking, reflectiveness, and the ability to see the limitations of one's own discipline
Flexibility	Not measured	
Innovation and knowledge management	Innovative/creative skills	Ability to come up with new ideas and to approach problems from a different angle
Mobilization of human resources	Strategic/organizational skills	Ability to act strategically towards the achievement of organizational goals and priorities
	Interpersonal skills	Ability to work in a team and communicate and cooperate effectively with diverse colleagues and clients
Entrepreneurship	Commercial/entrepreneurial skills (ability to turn an idea into a successful product)	Ability to recognize the commercial value of an idea and to search for and pursue opportunities to turn them into successful products
International orientation	International orientation (both aspects)	Proficiency of foreign languages and intercultural skills, that is the ability to work with people from different cultural backgrounds and to adapt to new cultural contexts

2.3 Conjoint study

Method

In this study we used Choice Based Conjoint (CBC) analysis to mimic the selection and hiring process of employers by showing them three hypothetical profiles of job candidates at a time and asking them to select the one they would invite to a job interview (first step) or hire (second step) or reject all. This evaluation of full profiles was repeated 10 times in both steps, so that each respondent had to evaluate 30 profiles per step. A 'shortcut' design ensured that respondents were presented with balanced sets of profiles. For more information on conjoint analysis, see appendix 2.

Sample design

We made use of the business and consumer panels from TNS in the following nine countries: Czech Republic, France, Germany, Italy, the Netherlands, Poland, Spain, Sweden and the UK. The countries have been selected in such a way as to provide a good geographical coverage of the EU, with all well-known economic and cultural differences associated with northern, western, southern and eastern European countries. But these countries also provide differences that are not easily grouped into geographical differences, for example when it comes to relevant characteristics of the labour market and the HE system. It represents labour markets that can be characterised as typical occupational labour markets, such as Germany and the Netherlands and labour markets that are typical internal labour market types such as France and the UK. It covers countries where the labour market is highly institutionalised (such as Italy and Spain) and countries where employment protection legislation is low (such as the UK and Czech Republic). There are countries such as Germany and the Netherlands with a binary system of HE, as well as countries with unitary systems, such as Spain and the

UK. There are countries like France and the UK with large institutionalized prestige differences between HEIs, as well as countries like the Netherlands and the Czech Republic in which such differences are much smaller. In countries such as Germany and the Czech Republic the entry to HE is rather selective, whereas this is much less the case in countries like Sweden and Italy.

The need to focus on specific occupational fields

One problem in employer surveys is that they tend to be biased towards more general skills. This is a direct result of the fact that employers are asked to report on what they find important for graduate jobs in general rather than for a specific function they have in their organization. This is not easy to avoid: once you ask employers to think of a specific function, it might be difficult to generalize the findings across different employers. So there will always be some tension between making the questions specific enough to illicit the right kind of answers and making it general enough to be able to generalize the findings.

In this study we chose to select a number of occupational fields that are relevant for HE graduates.³ The following six occupational fields were chosen:

- Financial professionals (e.g. accountant, financial analyst, investment advisor);
- Engineering professionals (e.g. civil engineer, mechanical engineer, chemical engineer) and Electrotechnology engineers (e.g. electronics engineer, telecommunications engineer);
- ICT professionals (e.g. system analyst, software developer);
- Media and communication professional (e.g. public relations officer, media consultant, journalist);
- Legal professionals (e.g. lawyer, jurist, legal advisor);
- Policy professionals/organisational advisors (e.g. policy analyst, human resource expert, management consultant).

The first three occupational fields are also the ones that are often indicated as fields in which employers have trouble finding enough suitable job applicants. Inspection of the data from the REFLEX project suggests that these fields provide a rather good coverage of both graduates and of the domains in which they work. Around a quarter of all graduates work in these fields, and the coverage is broadly representative of the distribution of graduates across major fields of study (with the obvious exception of medicine). We also considered including R&D professionals as an occupational field as it is of great importance for the innovative capacity of the economy. This field was considered too small to be included in the conjoint study, but was explicitly addressed in the in-depth interviews, especially those with multinational companies.

3. In choosing the fields the following considerations were taken into account: 1. For practical reasons the study should include not more than six fields; 2. The fields should provide a good coverage of the full range of fields of study in HE; 3. The fields should be relevant for a substantial proportion of all graduates; 4. The fields should represent the private sector and the public sector; 5. The fields should represent occupations where employers have some degrees of freedom on the job requirements. We therefore excluded the classical professions such as teachers and medical doctors; 6. To avoid comparability problems across countries, we only considered fields that are accessible via academic universities.

The questionnaire

The first part of the questionnaire consisted of selecting the appropriate respondent. We started asking respondents about some of their background characteristics. These background variables were used for data analyses and reporting where relevant.⁴

The main part of the survey consisted of the simulation of the selection process. We asked the respondents to imagine a situation in which they recruit a recent HE graduate for the position of one of the above-mentioned occupational fields.⁵ We instructed the respondent that the position for which they were recruiting was a full-time junior position and that this position was a structural position in the organization with a longer time horizon (no seasonal work, no short-term replacement position). This ensures that the recruitment criteria that are identified relate to significant jobs and careers for HE graduates.

In the first step respondents were presented with different hypothetical profiles of possible job applicants and asked which of these candidates they would invite for a job interview for this position. These profiles were based on the kind of formal characteristics that can usually be found in a letter of application or a CV. Respondents were presented three profiles at a time from which the respondent needed to select one candidate or the 'none' option. This was repeated 10 times. Each profile consisted of six attributes that typically signal information on the applicant's skills level, such as degree or field of study. We explicitly ignored attributes that cannot be influenced by educational policy such as gender, age or appearance. The selection of attributes was based on results of the REFLEX study that identified the most important formal characteristics that determine labour market success: degree level, field of study, relevant work experience, experience of studying abroad and GPA. Next to this we also included information on the applicant's starting salary to get an idea about the role salary plays in the initial selection round and to what extent employers are willing to pay for favourable characteristics.

Each of the attributes consisted of a number of different levels. The attributes and the corresponding levels were formulated such that they could apply to all occupational fields. For example, instead of giving information on the exact study field of the job applicant, we gave information to what extent the field of study matches the job tasks. And instead of giving information on the exact type of work experience, we gave information whether the work experience was relevant or not. This ensured that we were able to design vignettes that had equivalent meaning across different countries and across different occupational fields.

A strong point of conjoint analysis is that it enables us to explore the relative importance of attributes. For example, we can estimate whether it is more important to have above average grades (as opposed to below average grades) than to have one year (as opposed to zero years) of relevant work experience. It is important to note, however, that relative importance can only be expressed for attributes included (observed) in the conjoint study. Other factors which were not included in the profiles, such as motivation, may also influence graduates' employability, yet in the context of this study no statement can be made about their importance relative to attributes included in the study.

4. The complete questionnaire (including background variables) can be found in the webappendix: http://ec.europa.eu/education/higher-education/studies_en.htm

5. In case the respondent had only been involved in recruiting for one of these fields, this was the one for which they had to answer the questions. In case the respondent had been involved in recruiting for multiple occupational fields, one of these fields was randomly selected. To ensure a more or less even distribution across the six occupational fields, this selection process was programmed such that the fields that only a few respondents had ticked were chosen first.

All attribute levels were randomly assigned so that the correlation between attributes is zero and we did not put any restriction on possible combinations of attribute levels. While this allows for an unbiased estimate of the signalling value of each attribute it also widens the range of signals employers may read into attributes. This has to be taken into account when interpreting the results. For example, employers who prefer graduates with a master's degree over graduates with a bachelor's degree may value the former's higher (expected) level of skills, but may also have a preference for older graduates (master's degree holders are on average older than bachelor's degree holders). Another example is that an employer might find it strange that in some profiles a graduate with a master degree might earn far less than a bachelor with comparable experience, which might give a negative signal on this graduate's unobserved skills. The in-depth interviews, in which employers are asked why they chose certain profiles, therefore play an important role in understanding the reasoning behind employers' preferences.

Table 2.3 displays the attributes and the corresponding levels and Figure 2.1 gives an example of a screenshot of the first step of the vignette study.

Table 2.3

Attributes and attribute levels used in the first step of the selection process

Attributes	Attribute levels				
Degree	Bachelor (BA, BSc)	Master (MA, MSc)	Doctorate (Dr)		
Match of field of study and job tasks	Field of study matches job tasks completely	Field of study related to job tasks but no exact match	Field of study unrelated to job tasks		
Relevant work experience	No	1 year	2 years		
Study abroad	No	Partly	Entirely		
Grade Point Average	Below average	Average	Above average	Upper 10%	
Prestige of university	Top ranked university	Average ranked university			
Starting salary	25% below average for this position	10% below average for this position	Average for this position	10% above average for this position	25% above average for this position

After the completion of the previous step in which we looked at the signalling value of different formal characteristics, we now turn to the second step in the imaginary selection process: the actual hiring of a HE graduate based on his or her actual skill levels. To make this as realistic as possible, the respondents were presented with the following situation:

"Now imagine that you have selected and invited a pool of candidates who all seem equally suitable to do the job you are recruiting for. You have sent these candidates to an assessment centre which has thoroughly tested their skill level in the following six domains:

- professional expertise
- general academic skills
- innovative/creative skills
- strategic/organizational skills
- interpersonal skills


■ entrepreneurial/commercial skills.

For each skill domain, the report indicates whether candidates belong to the bottom 25% of their group, the group average, or the top 25%. The group they are compared with is a reference group of candidates for a similar position.”

The respondents were given definitions of these skills, as displayed earlier in Table 2.2, which they could return to any time later during the survey. Then they were presented with three different profiles at a time for which the respondents need to indicate which one they would hire for the job (or have the option to select none of the three). This was again repeated 10 times. Apart from the skill profiles, the respondents got an indication of each candidate’s starting salary, so that we will be able to assess how much employers are willing to pay for higher skill levels. As in the first step, the attribute levels are assigned randomly so that the correlation between attributes is zero.

Figure 2.1

Example of printscreen step 1 of the vignette study



Of these 3 candidates, which one would you invite to a job interview?
Remember this is a junior position for a recent higher education graduate.

Candidate 1	Candidate 2	Candidate 3	None of these
Degree: Bachelor (BA, BSc)	Degree: Master (MA, MSc)	Degree: Doctorate (Dr)	<input type="radio"/>
Match of field of study and job tasks: Field of study related to job tasks but no exact match	Match of field of study and job tasks: Field of study unrelated to job tasks	Match of field of study and job tasks: Field of study matches job task completely	
Relevant work experience: No	Relevant work experience: 2 years	Relevant work experience: 1 year	
Study abroad: No	Study abroad: Partly	Study abroad: Entirely	
Grade Point Average: Above average	Grade Point Average: Average	Grade Point Average: Below average	
Type of university: Average ranked university	Type of university: Average ranked university	Type of university: Top ranked university	
Starting salary: Average for this position	Starting salary: 25% below average for this position	Starting salary: 25% above average for this position	
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Please, click on the button under the candidate you would choose.
And then click on the arrow symbol to continue.




Table 2.4 presents the skill attributes and corresponding levels. Figure 2.2 gives an example of a screenshot of step 2 of the vignette study.

Table 2.4

Skills and skill levels used in the second step of the selection process

Skill domain	Skill level				
Starting salary	25% below average for this position	10% below average for this position	Average for this position	10% above average for this position	25% above average for this position
Professional expertise	Bottom 25%	Average	Top 25%		
General academic skills	Bottom 25%	Average	Top 25%		
Innovative/creative skills	Bottom 25%	Average	Top 25%		
Strategic/organizational skills	Bottom 25%	Average	Top 25%		
Interpersonal skills	Bottom 25%	Average	Top 25%		
Commercial/entrepreneurial skills	Bottom 25%	Average	Top 25%		

The candidate's skill level was assessed in reference to a group of candidates for similar positions.

Figure 2.2

Example of printscreen step 2 of the vignette study



Of these 3 candidates, which one would you hire?
Remember this is a junior position for a recent higher education graduate.

Starting salary: 10% below average for this position	Starting salary: Average for this position	Starting salary: 10% above average for this position	None of these
Professional expertise: Bottom 25%	Professional expertise: Average	Professional expertise: Top 25%	
General academic skills: Top 25%	General academic skills: Average	General academic skills: Bottom 25%	
Innovative/creative skills: Top 25%	Innovative/creative skills: Bottom 25%	Innovative/creative skills: Average	
Strategic/organizational skills: Average	Strategic/organizational skills: Bottom 25%	Strategic/organizational skills: Top 25%	
Interpersonal skills: Bottom 25%	Interpersonal skills: Top 25%	Interpersonal skills: Average	
Commercial/entrepreneurial skills: Average	Commercial/entrepreneurial skills: Bottom 25%	Commercial/entrepreneurial skills: Top 25%	

The candidate's skill level was assessed in reference to a group of candidates for similar positions.

Please, click on the button under the candidate you would choose.
And then click on the arrow symbol to continue.



Before the main survey was conducted, the questionnaire and the vignettes were tested in cognitive labs as well as in a Dutch pilot, after which the survey was slightly adjusted. See appendix 2 for more information on the testing of the questionnaire.

The data collection

As indicated above, we made use of the TNS online business and consumer panels. In the survey a selection was carried out to identify respondents who have experience with hiring and selecting HE graduates for the identified occupational fields. All data collection was done online. The total interview time was some 15 minutes. The data collection took place during the period April - June 2012 by TNS NIPO. The response distribution across countries and occupational fields is shown in table 2.5.

Overall, data on 903 respondents was collected. In most countries a target was set to reach 100 respondents. This was not possible in the Czech Republic because of the lower sample size of the panel. This was compensated by some oversampling in the Netherlands. The absolute number of respondents varies by occupational field from 73 for the category of policy/organizational professionals to 244 for the engineering professionals.

Table 2.5

Response per country and per occupational field

Country	Absolute number of respondents (realized)	Absolute number of respondents per occupational field					
		Finance	Engineering	ICT	Media and communication	Legal	Policy
Czech Republic	64	10	23	16	7	5	3
France	100	15	22	23	16	21	3
Germany	100	7	30	17	19	17	10
Italy	100	16	34	13	19	11	7
Netherlands	147	35	30	33	18	13	18
Poland	92	26	18	9	13	14	12
Spain	100	13	31	20	5	26	5
Sweden	99	22	40	11	13	12	1
United Kingdom	101	16	16	29	12	14	14
Total	903	160	244	171	122	133	73

2.4 The in-depth interviews

Research objective

The conjoint study gives a first impression on what employers seek in graduates. But there are clear limitations as well. Although we know what the choices are that employers make, we do not know why they make these choices. Moreover, the conjoint study presents the outcome in which an employer has to choose only one candidate for a job. In reality however, some employers have multiple jobs on offer or they might be looking for an optimal mix of skills in the team as a whole rather than in one person. In those cases the mix of skills that is required may be different from the mix of skills if only one person is hired.

The in-depth interviews create the possibility to address issues that could not be covered in the conjoint study. We will repeat the conjoint exercise, but now focus on the

motivations of employers why they make certain choices. We will also address the issue of the mix of skills they seek in a team. And we address the dilemmas employers are faced with, in particular their experiences with skill deficits (graduates with the 'right' qualifications lacking certain skills) or skill shortages (lack of job applicants with the 'right' qualifications) and a discussion of possible solutions including the role of higher education.

Research questions

The research questions addressed in the in-depth interviews were:

1. When we confront employers with different graduate profiles, what is their motivation to choose certain profiles?
2. What is the optimal skill mix that the *pool* of graduates within the organization needs to possess?
3. How have job skill requirements changed over time, and how will they develop in the future?
4. What skill deficits and/or skill shortages (if any) do employers experience? How do employers deal with possible deficits or shortages?
5. What is it that HEIs could do to prevent these deficits or shortages?

Content of the interviews⁶

All interviews started with a repetition of the two steps in the conjoint study, to reveal the motives behind making certain choices. Instead of 10 iterations, we now only had 3 iterations of each step. Respondents were asked to think out loud while choosing their preferred job applicant profiles.

After the selection of candidates, respondents were asked which attribute/skill is important to them in general, whether there are attributes/skills where compensation is possible, and whether they can define the tipping points when the attributes/skills are possessed in a sufficient degree and when it is a 'no-go'. Moreover respondents were asked to indicate whether there were any attributes/skills not mentioned so far that they thought were important in the recruitment process.

As indicated above, international orientation was not part of the set of skills that were assessed in the conjoint study. We therefore explicitly addressed the relevance of this skill domain in the in-depth interview. This 'international orientation' was defined for interviewees as not only relating to strong foreign language skills but also to the ability to work with people from different cultural backgrounds and to adapt to new cultural contexts.

In the next step we zoomed out from recruiting a single graduate to getting insights into the skill mix the pool of graduates in an organization needs to possess. Do all graduates who are hired for a position within the particular occupational field need to possess the same skill profile or is there room for specialization? If yes, what do these specialized skill profiles look like and what are the limits of specialization, i.e. what is the minimum level of these skills that each graduate needs to possess in order to function well in the organization?

In the third step we asked the respondents to reflect whether skill requirements have changed over the last decade and whether they are likely to change in the coming

6. See appendix 3 for more information on the testing of the questionnaires and interviewer guideline.

decade. Moreover, respondents were asked to indicate whether they experience any frictions when recruiting graduates. Is the respondent satisfied with the skills HE graduates possess? Or are there skill deficits? And are there enough candidates with the proper qualifications or are there skill shortages?

Finally, the respondents were asked to address how their organization deals with skill deficits and shortages. What role does internal training, the adjustment of recruitment criteria (e.g. educational requirements), technology or the tapping of international labour markets play in resolving these frictions? And what is it that HEIs, national governments and the European Commission (could) do to minimize or prevent skill deficits and/or skill shortages?

2.5 Focus groups

Research objective

In the in-depth interviews, issues are strictly discussed from an individual employer's perspective. It is important, however, to explore what *all* actors involved should do to meet the challenge of improving graduate employability. Therefore, each country that conducted interviews, also organized a focus group in which the dilemmas that HEIs face could be discussed, and the participants' arguments for or against certain options could be clarified. Using focus groups with participants who have different perspectives on the dilemmas at hand allows to better discuss the choices that have to be made by policy makers at international and national level as well by HEIs at the meso level.

Content of the focus groups

Based on the results of the literature review and the in-depth interviews, the major dilemmas that HEIs face were selected. For each focus group a total of 6-9 persons was selected: employers, representatives from HEIs, ministry of education and quality assurance agencies. During the focus groups, three issues were discussed that are related to skills, skills development and employability:

- The importance and role of specific knowledge in developing graduates' skills.
- The need to strike a balance between developing skills that improve short-term employability and skills that improve long-term employability.
- The need to spend the limited amount of time in HE as efficiently and effectively as possible: given that time is limited, which skills should be developed in HE and which skills can also or even better be developed outside HE?



3 The signalling value of CV attributes

3.1 Introduction

As laid out in chapter 2, this study used two separate conjoint studies to elicit employers' preferences in the recruitment process. The first conjoint study simulated the selection process for a job interview and aimed at exploring employers' preferences with regard to CV attributes. The second conjoint analysis (done with the same respondents) then elicited employers' preferences with regard to particular skills in the actual hiring decision. This chapter presents the results of the first conjoint study, chapter 4 will focus on the second.

The advantage of conjoint analysis over other methods of measuring the relative importance of attributes (e.g. asking respondents to rate the importance of a given attribute directly) is that it is based on respondents' evaluation of sometimes imperfect graduate profiles. In conjoint analysis, the importance of an attribute (e.g. graduates' grades) and respective levels (e.g. below average grades) is made indirectly without respondents' awareness. By confronting respondents with trade-offs (one profile might be very attractive for some attributes, another profile for other attributes) they are forced to decide what is really important to them. As laid out in the methodology section in the appendix, the extent to which a respondent prefers one characteristic over another is estimated in the form of so-called part-worths. The greater the difference between the part-worth of one attribute level (e.g. one year of relevant work experience) and another level of the same attribute (no relevant work experience) the more a respondent prefers that level over the other (one year of relevant work experience over no work experience). This way, we cannot only find out which attribute is most important in explaining respondents' choices, but we are also able to see which attribute level contributes most to an attribute's importance. Note that the way we estimate the part worths of different levels does not assume any linearity or even ordinality. The result may well be that two years of relevant work experience is considered better than no work experience, but worse than one year of work experience.

For the correct interpretation of the conjoint study results presented below it is important to understand what exactly employers' preferences refer to. The way the study was designed, estimated part-worths elicit the signalling value of attribute levels. The content of the signal may vary across employers, depending on what a particular employer associates with a particular attribute. Attributes such as graduates' degree can, for example, signal a variety of graduate characteristics. Employers may value graduates' degree level as an indicator of their skill level. However, employers may additionally use this attribute to infer a range of other graduate characteristics such as their age, their interest in practical work, and their career ambitions – characteristics which are all relevant for evaluating the potential quality of the graduate-job match. The interpretation of why a certain attribute is considered important is based on the information gathered in the in-depth interviews in which employers are asked about the motivation behind their choices. Consequently, the approach chosen for this study is to complement the quantitative analyses of the conjoint study with qualitative information and quotes from the in-depth interviews to provide a balanced picture of employers' perspective on graduate employability.

The remainder of this chapter is structured as follows: Section 3.2 provides a first impression of the importance of particular attributes. The main results of the first conjoint study, that is, the (rescaled) part-worths of particular CV attribute levels, are then presented in section 3.3. Section 3.4 illustrates what the preference structure of

employers means for the possibility to compensate a disadvantage in one CV attribute with an advantage in another. Section 3.5 explores to what extent employers are willing to pay for inviting job applicants with more favourable characteristics. Section 3.6 concludes.

3.2 Which attributes are most important?

In the first step of the conjoint analysis the impact of CV attributes on graduates' chances to get invited to a job interview were assessed. While detailed information on employers' preferences expressed as part-worths is presented in the next section, it is useful to first look at the relative importance of attributes. The relative importance provides a first impression of employers' preference structure with regard to CV attributes. The percentages given below express the amount of variance in choices explained by a given attribute.

The relative importance of the CV attributes contained in the first conjoint study is the following:

- Match between field of study and job tasks (complete match, related but no exact match, not related): 25.8%
- Relevant work experience (no, 1 year, 2 years): 19.9%
- Degree (bachelor, master, doctorate): 19.3%
- Grade Point Average (below average, average, above average, upper 10%): 17.8%
- Study abroad (no, partly, entirely): 11.0%
- University's prestige/reputation (top ranked, average ranked): 6.3%

Calculation of attributes' relative importance and its limitations

There are different ways to calculate relative importance of attributes, that is, the contribution of a given attribute to explaining respondents' choices. A standard way of calculating is to compare the ranges between the part-worths of the most preferred attribute level and the part-worths of the least preferred attribute level (see Appendix 2 as well as section 3.3). Dividing each attribute's range by the sum of all attributes' ranges gives the attribute's contribution to overall choice in per cent. This is what has been done here as well.

This method of calculating the relative importance of attributes has, however, two important limitations. First, the range between the part-worth of the most preferred attribute level and the part-worth of the least preferred attribute level is sensitive to the number of attribute levels as well as to possible extreme values. For example, one of the reasons why university's prestige or reputation turns out to be the attribute with the least relative importance is that it only has two levels. Second, the relative importance estimates neglect important information on the contribution of a given attribute level to the attribute's importance. In many cases, however, this is the most interesting kind of information. For example, while the kind of degree graduates have is the third most important attribute, this almost entirely stems from the relative low value employers attach to doctorate degrees when filling junior positions. Ignoring this information could lead to the wrong conclusions.

On average, employers pay most attention to the match between graduates' field of study and the tasks of the job on offer, followed by the amount of relevant work experience. Both CV attributes are an indicator of graduates' specific skills and professional expertise. The third most important attribute is graduates' degree level. The difference between employers' preference for master's degrees and bachelor's degrees does not, however, contribute much to the relative importance of the degree. Rather, its importance stems from the low value employers attach to a doctorate degree when in fact looking for a suitable graduate for a junior position. GPA, an indicator of graduates' general ability, ranks fourth with regard to the relative importance of attributes. Its contribution to overall choice is more or less comparable to the importance of degree and relevant work experience. The relative importance of experience of studying abroad is lower than that of the before-mentioned attributes. As we shall see later, employers prefer to select job applicants who have done part of their study abroad, followed by job applicants who have done their entire study abroad. Employers' most prominent association with this attribute is that graduates who have spent time abroad are more open to experience, have shown initiative and have a sense of independence. Employers generally value having studied abroad as positive, but not as a decisive criterion such as field of study or work experience. In other words, having studied abroad cannot compensate for having a non-matching field of study or a lack of relevant work experience, but it can tip the balance when other characteristics are the same. This explains the relative low importance. The prestige of the university is the least important attribute. It can best be understood as an indicator of the quality of education or positive self-selection of applicants. As will be shown in detail in the next section, this attribute is above all consulted when in doubt, or when trying to make inferences about the reliability of grades. The prestige of the university is explaining only a third of the variation in choice outcomes explained by degree or relevant work experience, and only one fourth of the variation explained by the match between the field of study and the job tasks. It should be noted, however, that the study design did only contain two levels of prestige and excluded a category referring to below average prestige. As we shall see later this leads to an underestimation of the importance of the prestige of a university in relative importance calculations using the range of part-worths between attribute levels.

Relative importance by segment

Tables 3.1 to 3.4 show the ranking of the relative importance of CV attributes for countries, occupational fields, the market level organizations are operating on, as well as firm-size. Apart from some minor deviations, rankings are stable across and within these employer segments. The minor differences we find do not seem to be systematically related to institutional differences across countries, such as differences in labour market institutions or in HE systems. The finding that rankings do not differ much across countries might come as a surprise as some of the results in the graduate surveys suggest a weaker link between study field and job tasks in countries like the UK (e.g. Storen and Arnesen, 2011). This may be due to different factors. One is that this study examines preferences and not realised outcomes. Employers may have a preference for graduates with a matching field of study, but this does not mean that these graduates are also available. When the HE system does not 'produce' enough graduates from the 'right' field of study, employers are forced to choose graduates from other fields, thus resulting in a higher proportion of horizontal mismatches. The earlier results from the graduate surveys suggest that the factors driving success on the labour market do not differ that much across the different countries. This would imply that differences in outcomes are not so much caused by differences in preferences of graduates or employers, but by differences in supply and demand. Another factor that

may play a role is that what constitutes a 'matching' field of study might differ from country to country. In the eyes of a British employer, this may be broader defined than in the eyes of a German employer, which would result in a similar ranking but a different outcome.

Table 3.1

Relative importance of CV attributes, ranking by country

	CZ	FR	DE	IT	NL	PL	ES	SE	UK
Match field of study job task	1	1	1	1	1	1	1	1	1
Relevant work experience	2	2	2	3	4	3	2	2	2
Degree	3	3	3	4	3	2	3	3	3
GPA	4	4	4	2	2	4	4	4	4
Study experience abroad	5	5	5	5	5	5	5	5	5
University's prestige/reputation	6	6	6	6	6	6	6	6	6

Note for tables 3.1 to 3.4: Rankings are based on relative importance in per cent. As tables are for illustrative purposes only, rankings have not been checked for statistical significance.

Table 3.2

Relative importance of CV attributes, ranking by occupational field

	Finance	Engineering	Electro- technology	ICT	Media and Communication	Legal	Policy
Match field of study job task	1	1	1	1	1	1	1
Relevant work experience	2	2	2	2	2	3	2
Degree	3	3	4	3	3	2	3
GPA	4	4	3	4	4	4	4
Study experience abroad	5	5	5	5	5	5	5
University's prestige/reputation	6	6	6	6	6	6	6

Table 3.3

Relative importance of CV attributes, ranking by market scale

	Local	Regional	National	International
Match field of study job task	1	1	1	1
Relevant work experience	2	2	2	2
Degree	3	3	3	3
GPA	4	4	4	4
Study experience abroad	5	5	5	5
University's prestige/reputation	6	6	6	6

Table 3.4

Relative importance of CV attributes, ranking by firm size (number of employees)

	<20	20-49	50-99	100-249	>=250
Match field of study job task	1	1	1	1	1
Relevant work experience	2	3	2	2	3
Degree	3	2	3	3	2
GPA	4	4	4	4	4
Study experience abroad	5	5	5	5	5
University's prestige/reputation	6	6	6	6	6

3.3 Which attribute levels are most important?

The relative importance presented above provides a first impression of the role attributes play in the job interview selection process. The (rescaled) part-worth estimates of the attribute levels, however, draw a much more accurate and rich picture of employers' preferences. This section presents the (rescaled) part-worths of attributes obtained from the conjoint analysis. Qualitative information from the in-depth interviews is used to facilitate interpretation. The attributes are presented in the order of their relative importance.

Interpretation of graphs

For readability, the value employers attach to CV attribute levels are displayed using bar charts. The height of the bars are expressed in point units, which have no meaning except that the more points given to an attribute level (e.g. 64.1 for a complete field of study –job task match) the more important it is to employers. The difference in points between one level of an attribute (e.g. complete field of study –job task match) and another level of THE SAME attribute (e.g. field of study and job task are related) conveys important information on how much employers prefer one attribute level over the other.

It is important to remember that the zero point is an arbitrarily chosen point of reference to which attribute levels are compared to. If an attribute level gets 0 points this does not mean that this attribute level has zero utility for employers. It simply means that this attribute level is the least preferred by employers and that the other attribute levels give employers x points more utility. It is therefore not possible to use points as ratio data: an attribute level with 60 points is not twice as attractive as an attribute level with 30 points.

The horizontal line indicates the height of the three bars if employers were completely indifferent about the different levels of the particular attribute.

Note that all figures in this chapter are based on pooled, unweighted data of nine European countries (Czech Republic, France, Germany, Italy, The Netherlands, Poland, Spain, Sweden and the United Kingdom). For rescaling of part-worths according to the points method see methodology section in appendix 2).

Match between field of study and job task

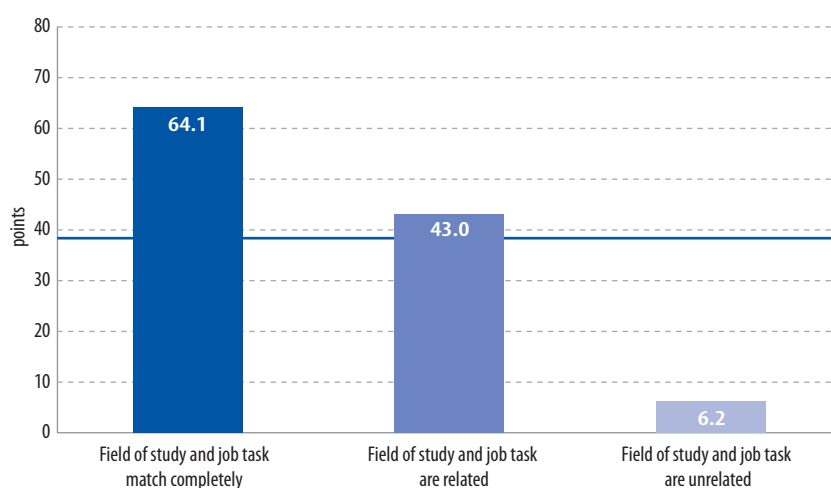
Figure 3.1 shows employers' preference structure with regard to the match between graduates' field of study and the task of the job on offer. The horizontal line indicates the height of the three bars if employers were completely indifferent about the different levels of this attribute (employers' utility associated with graduates who differ with regard to the levels of this attribute, all other things being equal, would be the same). Clearly, this is not the case here.

The match between the field of study and the task of the job is the most important criterion for employers when making their selection of whom to invite for a job interview. There is a clear preference of employers towards an exact match between field of study and the job task. Competing for a job interview with two otherwise equal graduates with

less matching qualifications, the candidate with the exact match would be most preferred (64.1 points), followed by the graduate with a related degree (43.0 points). The least preferred candidate is the one whose qualification is unrelated to the job task (6.2 points). The points being close to zero for the graduate with an unrelated qualification indicates that there is not much disagreement among employers with regard to the relative unattractiveness of this attribute level. The large drop in points moving from a related qualification to an unrelated qualification (36.8 points versus 21.1 points moving from a perfectly matched field of study to a related field of study) suggests that while employers might still be willing to invite graduates with a qualification which is related to the job task, chances of graduates with an unrelated qualification to be invited for a job interview are practically zero (of course depending on the scarcity of graduates with the relevant qualification and assuming all other attributes being equal).

Figure 3.1

Employers' preference structure with regard to the match between graduates' field of study and the job task (rescaled part-worths)



The strong preference for graduates whose field of study matches the job tasks completely can be explained by employers' effort to reduce their burden and the costs associated with the graduate's starting phase. The match between the field of study and the job tasks provides employers with information on the degree to which graduates' academic and theoretical background is relevant and applicable to the job. Employers assume that a graduate with a matching degree will develop quicker and have a more efficient start than a candidate with an unrelated degree who has to learn many basics from scratch.

"The discipline is really a main indicator for how quickly someone is broken in. The question always at the very fore is how long it will take before the applicant pays off." (5, Policy, Management consultancy, Germany)⁷

"It is time consuming for the company to spend so much time on a candidate so as to provide him/her with all the theoretical background, this is not our role. Our role is to teach him the reality on what he/she has already learned in theory." (4, Engineering, Engineering, Greece)

7. Quotes from the in-depth interviews always indicate the respondent number, the occupational field he or she answers the questions for, the economic sector he or she is working in and the country.

Most employers argue that in many cases having studied a field which is related to the job tasks is sufficient to be considered for the job interview. Employers expect those graduates to quickly get to grips with the new tasks as they possess enough basic knowledge and insight to perform the job at the junior level.

"The qualification is not entirely compatible but is related, which means you can very quickly allow people to perform the job for which they were employed." (6, Finance, Bank, The Netherlands)

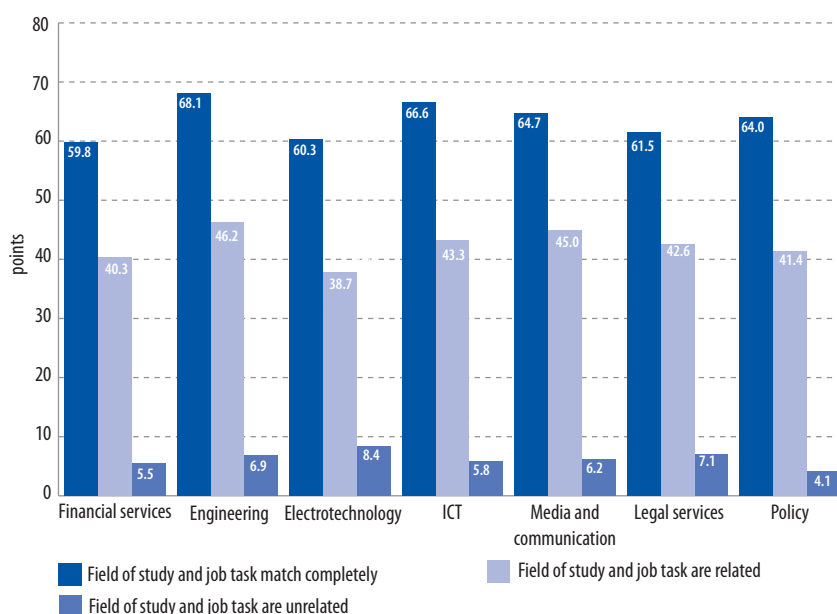
While most employers are prepared to invite candidates with a related field of study for a job interview, a vast majority of employers would refrain from inviting graduates with an unrelated degree. The in-depth interviews suggest that employers' willingness to invite graduates with an unrelated degree to job interviews depends on the specificity of knowledge required in their occupational field.

"For the positions I have to choose for, it must be nothing else than an engineer." (4, Engineering, Industry, Italy)

"For a journalist position, I can meet people with different degrees: literature, political science, even philosophy." (2, Media and Communication, IT, Italy)

Figure 3.2

Employers' preference structure with regard to the match between graduates' field of study and the job task, by occupational field (rescaled part-worths)



The suggested differences between occupational fields that arises from these in-depth interviews is not confirmed by the results of the conjoint analysis (see Figure 3.2). This indicates that rather than being a characteristic of particular occupational fields, the importance of the match between the field of study and the job task heavily depends on the nature of the particular job.

Employers' strong preference for candidates with a relevant degree does not mean that employers expect HEIs to supply graduates with skills which perfectly fit the needs of the organizations. In general, employers are willing to provide further training and teach

graduates the firm specific skills necessary to do the job well, be it by offering courses, or by organizing learning on the job.

"We encourage individuals to raise their competence by own means, for example by taking a course." (1, Media and communication, Media, Sweden)

"We explain them what to do. Every person that is hired has its own mentor. If we see that he is doing something wrong, somebody has to show him how to do it right." (7, Engineering, Construction, Poland)

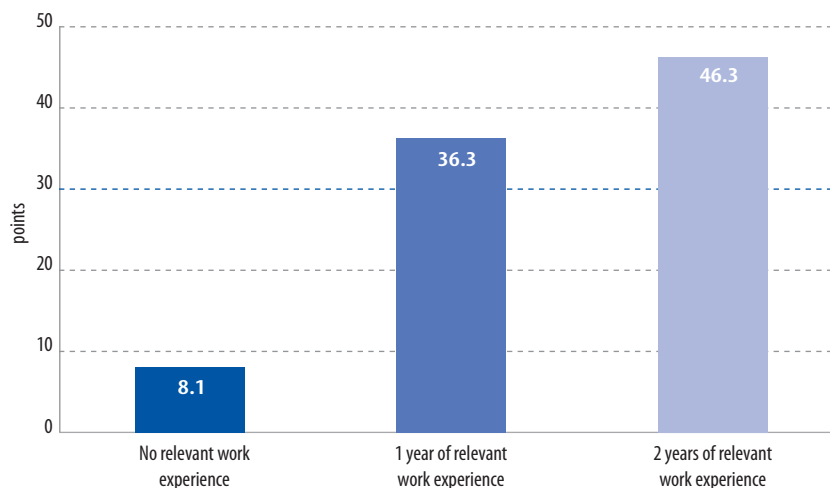
Many employers are also aware that HE cannot provide them with graduates whose skills match the organizations requirements one hundred per cent.

"The more specific you get, the more dependent you make people of certain employers." (3, R&D, Multinational, The Netherlands)

Relevant work experience

Figure 3.3

Employers' preference structure with regard to graduates' relevant work experience (rescaled part-worths)



The importance analysis already indicated that having relevant work experience significantly increases graduates' chances to be invited to a job interview. The preference structure is clear and reflects the idea of "more is better", although we should note that the major difference is between 'no work experience' and '1 year of work experience'. All other things being equal, the graduate with two years of work experience is the most preferred (46.3 points). Graduates with one year of relevant work experience are less preferred (36.3 points) but the difference of 10 points is small compared to the difference between graduates with and without relevant work experience (8.1 points, difference 28.2 points). Obviously, the marginal returns to work experience for getting invited to a job interview for a junior position are decreasing: one year of relevant work experience boosts graduates' chances substantially while the second year of work experience increases it only slightly.

Employers attach great value to relevant work experience as it signals a range of important skills, which employers prioritize. Relevant work experience is associated with professional knowledge and graduates' familiarity with the specificities of the work

environment. Graduates with relevant work experience have already made the transition from education to work and have already applied the knowledge acquired in HE to real-life problems. Therefore – much as with regard to the match between the field of study and the job task – relevant work experience is an indicator for the work readiness of job applicants.

"Work experience shows they can hit the ground running and get on with the job straightaway." (10, Policy, Policy trust, United Kingdom).

Besides making inferences about graduates' professional expertise, employers use relevant work experience as a marker to assess graduates' work readiness in terms of personality traits such as interpersonal skills, the ability to work independently, commitment, ownership and responsibility.

"When it's fresh graduates, I need to know more about them: whether they worked while studying, or did some project on their own in their occupational field. It helps me figure out if they are responsible persons who take care of themselves." (7, Media and Communication, Publishing, Czech Republic)

In this study, employers were asked to choose between graduates with no, one year or two years of relevant work experience. In practice, employers are flexible with regard to the length of the relevant work experience. Often, internships or work during university holidays fulfil employers' definition of relevant work experience. In addition, internships often represent one of the main tools of organizations to screen and select future employees.

Employers disagree to which extent work experience has to be acquired in the relevant occupational field. Employers' preference seems to depend on the extent to which occupation specific knowledge is demanded for the vacancy they want to fill. Those employers who are more interested in getting information on personality traits and the degree to which graduates are practical are more interested in whether applicants have any work experience at all.

"Work experience shows that they did something productive during their long uni holidays. This 'get out of bed' attitude is a good start in the office." (1, Finance, Accountant Consultancy, United Kingdom)

Employers are diverse and so are the jobs they offer and the requirements they have. Clearly, candidates with two years of work experience have a huge advantage, yet there are also arguments to prefer candidates with only one year of work experience or even no work experience. Some employers feel that two years of work experience are already too much for a junior position. Others even prefer graduates without work experience so they can be integrated into the organization more easily.

"If you are looking for juniors, then you want someone who is completely fresh and is able to contribute new ideas. However, if they already have two years full-time work experience, then they have already developed in a particular direction. I think one year is fine." (5, Legal, Business Services, The Netherlands)

"Work experience is not important at all for us. I hire a person with theoretical knowledge and I can train him or her as I want. We have a one year start-up programme

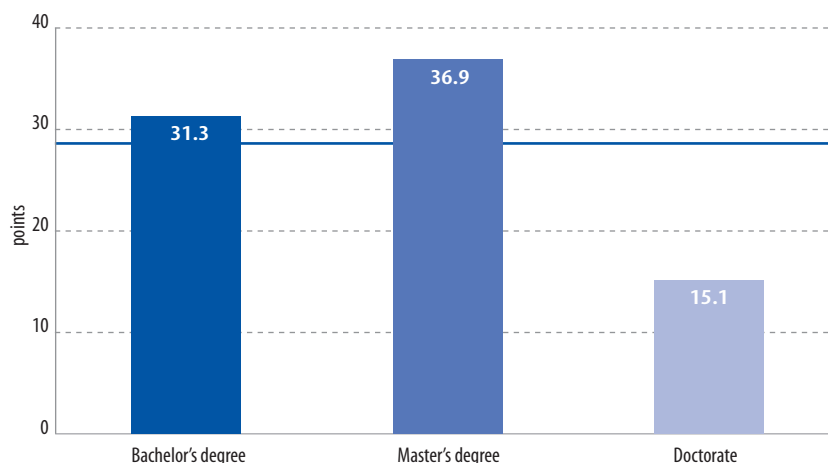
for newcomers, trainings. So it doesn't scare me at all that he or she has no working experience." (10, Policy, Public administration, Estonia)

Employers' evaluation of relevant work experience does not differ across countries or occupational fields.

Degree

Figure 3.4

Employers' preference structure with regard to graduates' degree (rescaled part-worth)



The degree is an important attribute in employers' screening process. Employers seem to have a very clear idea about which degree fits the job best.

Figure 3.4 shows that employers' preference of graduates with a master's degree over graduates with a bachelor's degree is, on a European average and all other things being equal, not very pronounced (36.9 and 31.3 points). There is, however, substantial variation across countries (see section below).

The findings from the in-depth interviews indicate that employers create positions with a particular degree in mind. Whether they prefer graduates with a bachelor's or a master's degree (or even with a doctorate) seems to inter alia depend on the job tasks as well as the existence of internal training schemes.

The advantage of graduates with a bachelor's degree is often related to their young age and their lower degree of specialization. Employers feel that this facilitates their integration into the organization and, just like graduates without work experience, makes them more receptive to corporate culture. Internal training is then often a way to provide graduates with additional professional specialization when needed.

"For a junior position I expect a bachelor, so for me they have the needed qualifications for the job." (1, Finance, Financial services/ICT, Greece)

"For a junior position, in the first instance we would look at the one with the bachelor's degree. Although we wouldn't rule out the master's degree, we find that people with an extra feather to their cap don't want to hang around for too long so you spend a lot of time training them up ... and they move on... we found a lot of these people are

those with a master's degree. You can come to the position overly qualified." (7, R&D, Occupational medicine, United Kingdom)

Employers often prefer graduates with a master's degree over graduates with a bachelor's degree if they require graduates to have a higher level of professional expertise from the start, and if they do not have the opportunity or the will to provide extensive additional training. Employers associate a master's degree with a higher degree of specialization, maturity and independence, meaning that they can adapt to their role within the organization with limited support from their colleagues.

"Experience shows that employees with a master's degree are more independent." (6, Finance, Bank, The Netherlands)

"Having a master's is a bonus, but we don't reject people for not having a master's." (5, Media and Communication, Spirits Company, United Kingdom)

Figure 3.4 also indicates that, on average, the doctorate is the least preferred degree for employers trying to find suitable candidates for a junior position. However, the score of 15.1 points also indicates that there is quite some heterogeneity among employers with regard to the preference structure.⁸ The profile of doctorates contains certain aspects that can make them less suited for average junior positions, unless a doctorate is really what the job requires. Graduates with a doctorate have many years of research experience but if the position they are applying for is not directly linked to R&D, or to their core subject, this experience can most often not be considered the kind of work experience which translates to a higher salary or a higher position in the organization. Moreover, many employers feel that while the interest of graduates with a doctorate lies with solving conceptual, more academic problems, the work associated with junior positions is often very applied and takes place in a very commercial environment.

"Doctorate level is perhaps too high for our needs. There is also a risk of such candidates quickly becoming dissatisfied and searching for new pastures." (1, ICT, Business service, The Netherlands)

These kinds of misfits can cause frustration on both the graduate's and the employer's side and are reflected in the results of the conjoint analysis. However, those employers who are explicitly looking for graduates with a doctorate to fill their (junior research) vacancies appreciate their level of educational specialization, their independent working style and their general academic skills.

"The doctorate looks very attractive, he would probably have his own literature and be very independent." (10, Policy, Policy trust, United Kingdom)

Country differences

Whereas employers' preference structure is similar in all European countries studied with regard to doctorates, it does systematically vary across countries with regard to bachelor's and master's degrees. Overall three groups of countries may be identified.⁹ In

8. Remember that rescaling of original part-worths to 'points' is done by – for each respondent – setting the least preferred attribute level to zero. If respondents did not differ with regard to the attribute level they prefer least, the points given to this attribute level on average would also be zero. The more points the on average least preferred attribute level is assigned (the closer the bar moves towards the horizontal line), the more heterogeneity among respondents with regard to the ranking of this level exists.

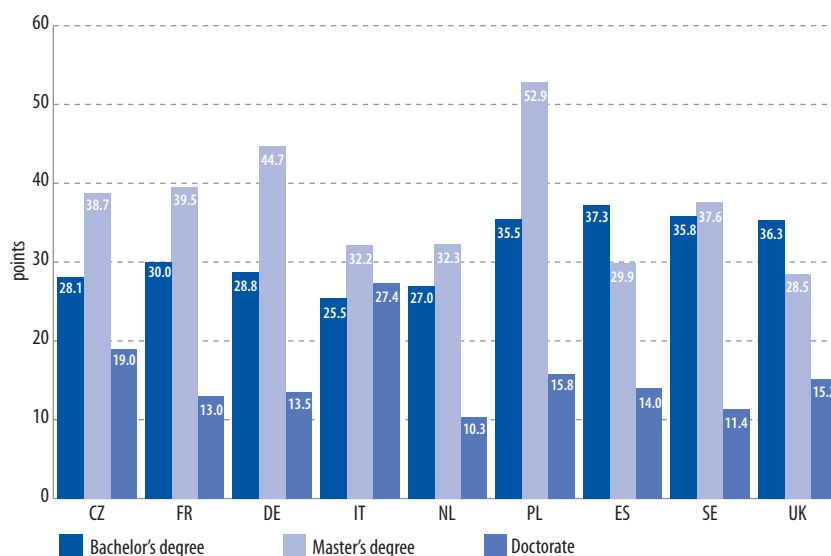
9. Italy is an exception as Italian employers seem to be almost indifferent between all three degrees.

the Netherlands and Sweden, employers on average seem to be almost indifferent about inviting graduates with a bachelor's degree or a master's degree to job interviews.¹⁰ The other two groups of countries differ with regard to whether they regard the bachelor's degree or the master's degree as the most employable degree.

In Spain and the United Kingdom, employers prefer graduates with a bachelor's degree over graduates with a master's degree when making a selection for invitations to a job interview. In both countries, the bachelor's degree (in Spain "Diplomado (Ciencias, Letras)" or "Ingeniero técnico") is the standard degree and the master's degree is regarded as an additional degree a very selective group of individuals are taking.¹¹ In contrast, in all the other countries, the masters' degree is – against the rational of the Bologna reform – often considered the standard and most common degree, and recruitment strategies seem to reflect this. In these countries, the impact of having a master's degree as opposed to a bachelor's degree on graduates' chances to get invited to a job interview is substantial. It is comparable to having a complete match between the field of study and the job task as opposed to a field of study which is only 'related' to the job task.

Figure 3.5

Employers' preference structure with regard to graduates' degree, by country (rescaled part-worths)



Grades

Employers usually regard grades as an indicator of the general ability of job applicants. Graduates with high grades are expected to be knowledgeable, well trainable and able to quickly adjust to changing job tasks or market situations. The results of the conjoint study show that the higher job applicants' grades are, the higher their chance to get invited to a job interview (see Figure 3.6). On average, employers do not make a strong distinction between graduates within the top 10% (36.9 points) and graduates with above average grades (35.6 points) although the difference is significant at the 10% level. Both levels are, however, preferred over average grades (27.1 points). As expected, the least preferred are below average grades (7.1 points). The difference

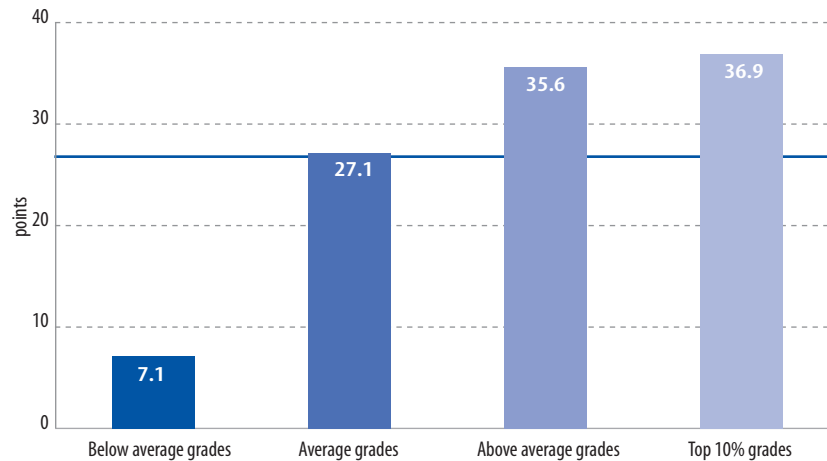
10. For Sweden, the rescaled part-worths differences in the bar chart are not statistically significant.

11. In Spain the preferences of employers for bachelor's degrees may also be due to unfamiliarity with recent changes in the HE system.

of 20 points is considerable and suggests that below average grades strongly reduce graduates' chances to be invited for a job interview.

Figure 3.6

Employers' preference structure with regard to grades (rescaled part-worths)



Note: The difference between above average grades and top 10% grades is significant at the 10% level (p-value 0.0537).

Figure 3.6 indicates that, with the exception of below average grades, there seems to be no overly dominant grade level. This indicates that while below average grades are often an exclusion criterion, the preference structure above this level is less pronounced. In general, being amongst the top 10% does not give graduates an edge over graduates with above average grades excluding the top 10% when applying for a job interview.

These average results, however, do not take into account the substantial variation amongst employers concerning the level of grades they consider the minimum threshold and the extent to which they think that grades are a good predictor of job performance. The information content of grades is judged differently by employers. While some employers do not attach any value to grades as a source of information on the applicant's abilities, this study's findings suggest that most employers regard grades as a relevant indicator of future job performance, although limitations are often acknowledged.

"I always look within the modules as often people who don't have high grades in the right modules cannot do the job well." (1, Finance, Accountant Consultancy, United Kingdom)

"There are too many things that are implied in the GPA, you never know what happened to him while he was studying." (6, Media and Communication, PR, Italy)

With regard to the minimum threshold employers impose, the continuum ranges from employers who think passing the degree enables graduates to perform the job they offer well to those employers who make top grades a prerequisite for being invited for a job interview.

"He passed his degree, thus the scores are not important." (3, Engineering, Engineering, The Netherlands)

"We, just as our competitors in the market, are basically trying to attract the top 3 to 5% of graduates in terms of grades as well as the intensity and quality of education."
(1, Legal, Multinational law firm, Germany)

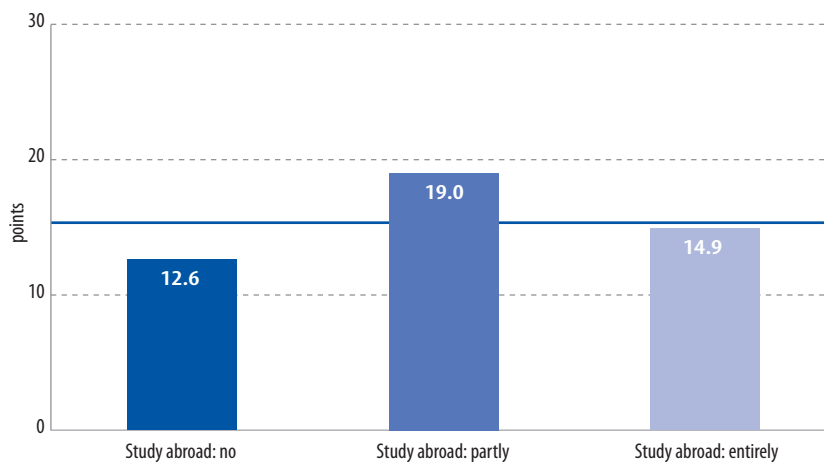
Very often employers indicate that the validity of grades depends on the university where the degree was obtained.

There are no differences between countries, occupational fields or other segments.

Study abroad

Figure 3.7

Employers' preference structure with regard to study experience abroad (rescaled part-worths)



Note: The difference between "Study abroad: no" and "Study abroad: entirely" is statistically significant at the 5% level (p-value=0.0135).

Employers prefer graduates who have studied abroad, whether in whole or in part. Figure 3.7 shows that employers prefer to select job applicants who have done part of their study abroad, followed by job applicants who have done their entire study abroad. Employers associate having studied abroad with two graduate characteristics. The first is skill related: employers regard study time spent abroad as an indicator of the candidate's advanced international orientation and language skills. The second association pertains to the graduate's personality. By having studied abroad, job applicants have demonstrated their ability and willingness to deal with new situations, to take risks and to be open to new experience. The vast majority of employers do not associate studies abroad with higher quality of education (with the exception of renowned and often field specific international programmes).

"Those who spent half a year abroad have a different state of mind, a certain openness. Beyond the language, they are resourceful people." (1, Engineering, Transport, France)

Many employers regard having studied abroad as positive. Having done part of your study abroad is preferred more than having done the entire study abroad and this in turn is appreciated more than no study abroad. The differences however are not very large, and not all employers agree. Results from the in-depth interviews suggest that while most employers find that having some study experience abroad is good, they are more concerned about study content when it comes to graduates applying with foreign degrees. Foreign degrees are attractive to employers interested in language skills or

subject specific knowledge, such as, for example, knowledge of particular countries' legal system. But in some cases employers fear that graduates with foreign degrees will have a lack of (home) country specific knowledge, especially where national rules and regulations are concerned.

"The question is whether studying abroad prepares for working in our reality. The law is specific." (6, Policy, Public administration, Poland)

Most employers indicate that the choice of whether to invite candidates for job interviews is not determined by whether studies have (partly) been pursued abroad. Having studied abroad is a tipping factor when other things are equal but are not a make or break in the hiring process.

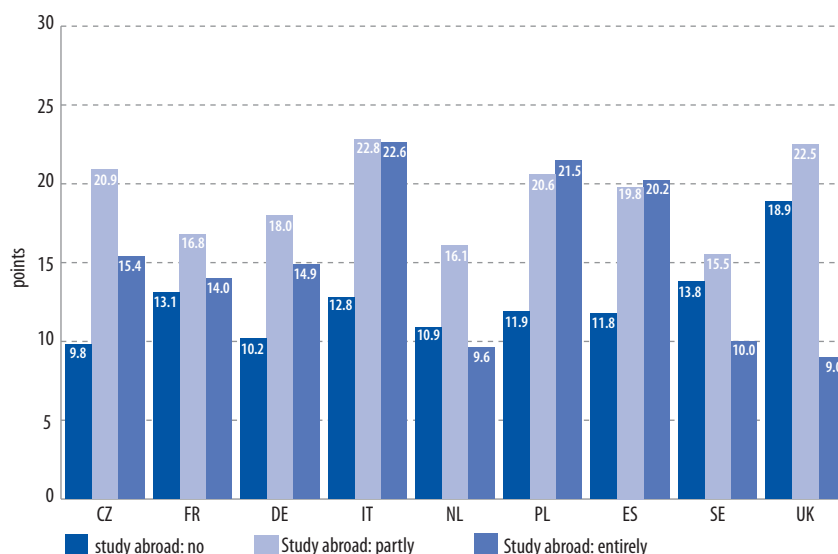
"Studies abroad? Not that important for this position, but not a downside either." (4, Policy, Public administration, Sweden)

The relative low importance of this attribute is reflected in our conjoint study estimates which show small differences between attribute levels. All other things being equal, graduates who have partly studied abroad (19.0 points) have a higher chance of being invited for a job interview than graduates with no experience abroad (12.6 points) and graduates who have pursued their entire higher education abroad (14.9 points), but the differences are not very large.

Country differences

There are some interesting differences across countries which are worth exploring further. While graduates who have partly studied abroad are the most preferred in all countries (with the exception of Italy and Poland, where they are equally preferred to graduates who have pursued their entire studies abroad) countries significantly differ with regard to the value employers attach to no experience abroad versus having pursued the entire study abroad. These differences are not related to country differences in the percentages of international student mobility.

Figure 3.8
Preference structure study abroad by country (rescaled part-worths)



In the Netherlands and France, employers are, on average, nearly indifferent between graduates with no experience abroad and graduates who pursued their entire study outside the country (10.9 vs. 9.6 points and 13.1 vs. 14.3 points). In the Czech Republic and Germany, graduates who have received their entire higher education abroad have slightly higher chances of being invited for a job interview than graduates without study experience abroad (15.4 vs. 9.8 points and 14.9 vs. 10.2 points). In Italy, Poland and Spain this difference is more pronounced (22.6 vs. 12.8 points, 21.5 vs. 11.9 points and 20.2 vs. 11.8 points). In Sweden and the United Kingdom, the picture is the reverse (13.8 vs. 10.0 points and 18.9 vs. 9.0 points). Especially in the United Kingdom, graduates with no study experience abroad are preferred over graduates who pursued their studies entirely abroad.

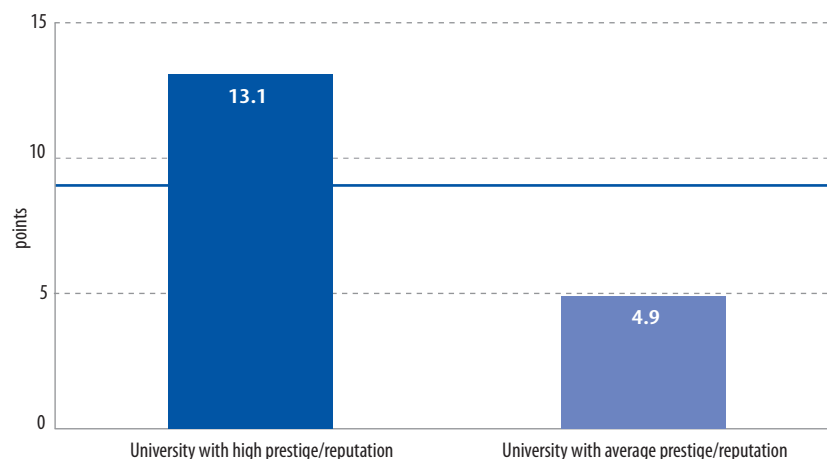
Prestige and reputation of university

The profiles respondents had to choose from in this study also contained information on whether the applicant graduated from a university with high or with average prestige or reputation. A university's prestige or reputation usually stems from quality based rankings, or at least from a consensus in professional circles that the quality of education of a particular university is high and/or that there is positive self-selection of students.

Employers take the prestige and reputation of a university into account when selecting graduates for a job interview. As Figure 3.9 shows, graduates from a university with high prestige/reputation have an advantage over graduates from universities with average prestige/reputation (13.1 vs. 4.9 points). This difference is considerable and comparable to two years versus one year of work experience, or above average versus average grades. Employers' preference of universities with high prestige/reputation over universities with average prestige/reputation is even stronger than their preference of master's over bachelor's degrees. The prestige/reputation of the university individuals graduate from sends a strong signal about their employability to employers.

Figure 3.9

Employers' preference structure with regard to the university's prestige/reputation (rescaled part-worths)



Differences across employers exist. While some employers do not consider the prestige/reputation of a university at all, others almost exclusively recruit from universities they consider prestigious or having a very good reputation. As with grades, the in-depth interviews suggest that employers put increasing weight on the prestige and reputation of a university the higher their expectations of graduates' ability and the more they can afford to be selective.

"Ranking of the university is not the subject. We ask for a certain level of education. High ranking is a plus, but we do not make decisions based on this factor." (2, R&D, IT, France)

"I am thinking that if I were to hire an economist then I would be very interested in someone from [a prestigious school of economics] since they have a very good reputation." (4 Policy, Public administration, Sweden)

Employers commonly use the prestige and reputation of a university in combination with grades to get a better picture of graduates' employability.

"There are universities that are extremely easy, and if on top of that the person doesn't have good marks, then this means it's not a very bright person." (6, Legal, Electric Utility Company, Spain)

Rankings or general notions of reputation are not the only way employers collect information on the quality of universities. The in-depth interviews revealed that many employers engage in co-operations with universities which provide them with rich information on the quality of education and students.

"We cooperate with several faculties, we have two laboratories in two technical universities, therefore, we know what we can expect from their graduates. We prefer these people when considering applications." (1, ICT, ICT, Czech Republic)

Country differences

Figure 3.10

Employers' preference structure with regard to the university's prestige/reputation, by country (rescaled part-worths)

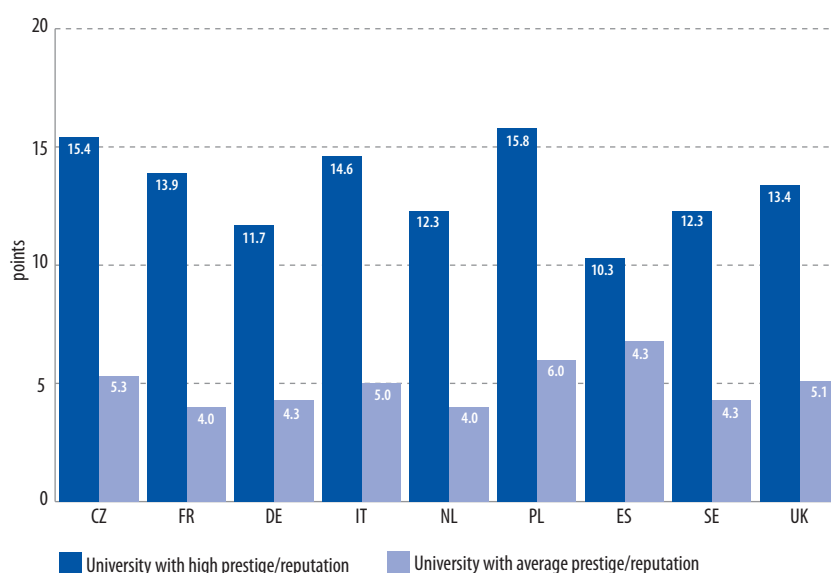


Figure 3.10 displays employers' preference structure with regard to inviting graduates from universities with high or average prestige/reputation to a job interview, by country. There are no strong differences across countries. This is to some extent surprising as prestige differences between HEIs in some countries, such as France and the United Kingdom, are often said to be more pronounced than in other countries, such as the Netherlands and

Germany.¹² This is probably due to our broad definition of prestige and reputation. Figure 3.10 suggests that in all countries participating in the study international rankings as well as experience and familiarity with particular HEIs play a role in the selection process. Its impact is comparable to the impact of having above average instead of average grades or having two years instead of one year of relevant work experience.

3.4 Can one attribute compensate for another?

In the previous section we explored employers' preference structure with regard to only one attribute. This was done in order to present and describe the value of different attribute levels to employers, all other things being equal. While helpful for emphasizing employers' basic preference structure, reality is more complex. In real-life situations chances are small that two graduates apply for a job who only differ in one attribute. One way to increase complexity and to show how a disadvantage in one attribute may be compensated by an advantage in another is to calculate the share of preference of hypothetical graduate profiles. This can easily be done using the part-worths of the conjoint study. The share of preference reflects the share of employers who would prefer a particular candidate profile from a given set of candidate profiles (see the methodology section in appendix 2 and the text box for further information). We here present profiles which were often mentioned by employers to have some compensatory value.

Match of field of study and job tasks vs. relevant work experience

"We accept both, applicants who demonstrate that they are well-armed from their studies or those who have worked in a field that is relevant to us. The important question for us is how quickly can I use someone and introduce him to responsible tasks." (4, Media and communication, Advertising, Germany)

Both attributes, the match between the field of study and the job tasks as well as relevant work experience, are indicators of the occupation-specific skills candidates have. Figure 3.11 presents three hypothetical graduate profiles. To illustrate the trade-off between these two attributes for graduates' chances to get invited to a job interview, we construct the profiles so that they are declining in the match of the field of study and the job task and increasing in relevant work experience. The shares of preference for these three types of graduates reveal that employers are indifferent between candidates with a related field of study and one year of relevant work experience and candidates with a perfectly matched field of study and no work experience. This means that one year of relevant work experience can compensate for not having a perfect match in terms of study field. Figure 3.11 also shows that graduates with unrelated fields of study have a significantly lower chance of being invited to a job interview than the other two graduate types even if they can provide evidence of two years of relevant work experience.

12. Note that this study excluded universities of applied sciences, such as the "HBO" in the Netherlands and the "Fachhochschulen" in Germany. In France, we cannot rule out that the wording "prestige de l'université" resulted in some employers excluding grande écoles from their choice set, leading to a downward bias of the effect of this attribute. The similarity of French results to that of the UK where also substantial differences in universities' prestige exist, however, suggests that the bias is minimal.

Interpretation of pie charts representing share of preference

The share of preference of a particular graduate profile is the estimated percentage of employers who would prefer this profile over other options presented to them. In this section, we will use this approach to explore the impact of possessing different combinations of attribute levels on graduates' chances to get invited to a job interview. The pie charts give the percentage of employers who would choose a graduate with a particular combination of attribute levels if confronted with a given set of graduate profiles.

Calculation of the share of preference

Let's assume the profiles used in a conjoint study contained three attributes, each having two levels: 1) no work experience/work experience, 2) bachelor's degree/master's degree and 3) non-matching field of study/matching field of study. We can now explore the relative employability of any hypothetical graduate profile using the part-worths associated with those attribute levels.

For example, let's imagine we want to assess the relative employability of three different profiles:

- Anna has no work experience, a master's degree and a matching field of study.
- Paul has work experience, a bachelor's degree and a matching field of study.
- Lisa has work experience, a master's degree and a non-matching field of study.

Recall that the part-worths estimated from the conjoint study are an expression of how much employers value a particular attribute level (e.g. master's degrees). Using these part-worths, we can calculate a score for each graduate profile. Let us denote the part-worths as $\beta_{1,1}$ to $\beta_{3,2}$ where $\beta_{1,1}$ refers to the value an employer attaches to the first attribute, first level (e.g. no work experience), and $\beta_{3,2}$ refers to the value an employer attaches to the third attribute, second level (e.g. a matching field of study).

The calculated scores are:

$$\text{Score}_{\text{Anna}} = \beta_{1,1} + \beta_{2,2} + \beta_{3,2}$$

$$\text{Score}_{\text{Paul}} = \beta_{1,2} + \beta_{2,1} + \beta_{3,2}$$

$$\text{Score}_{\text{Lisa}} = \beta_{1,2} + \beta_{2,2} + \beta_{3,1}$$

As the conjoint design applied in this study contained a none option, this has to be taken into account for the calculation of the shares of preference. In the data, the none option is also associated with a part-worth. This value can be interpreted as the value that has to be surpassed by the sum of the other part-worths in order for the employer to choose a graduate from the choice set instead of none.

$$\text{Score}_{\text{none}} = \beta_{\text{none}}$$

The scores are now transformed into shares of preference using the logit rule. The share of preference (SoP) of the three graduate profiles as well as the none option would be:

$$\text{SoP}_{\text{Anna}} = e^{(\text{Score-Anna})} / (e^{(\text{Score-Anna})} + e^{(\text{Score-Paul})} + e^{(\text{Score-Lisa})} + e^{(\text{Score-none})})$$

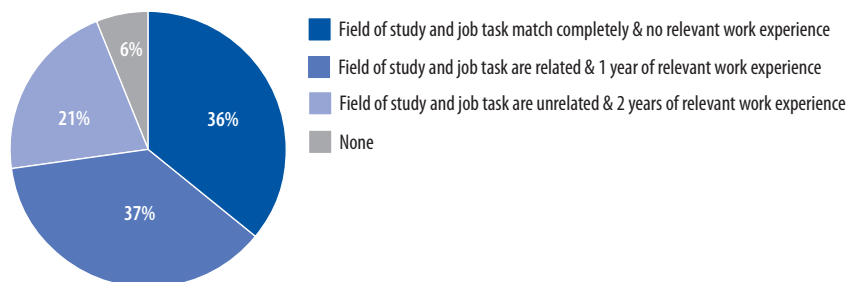
$$e^{(\text{Score-Lisa})} + e^{(\text{Score-none})}) \quad \text{SoP}_{\text{Lisa}} = e^{(\text{Score-Lisa})} / (e^{(\text{Score-Anna})} + e^{(\text{Score-Paul})} + e^{(\text{Score-Lisa})} + e^{(\text{Score-none})})$$

$$\text{SoP}_{\text{none}} = e^{(\text{Score-none})} / (e^{(\text{Score-Anna})} + e^{(\text{Score-Paul})} + e^{(\text{Score-Lisa})} + e^{(\text{Score-none})})$$

In this section, the share of preferences are presented as pie-charts.

Figure 3.11

Trade-off between Match of the field of study and the job task/Relevant work experience, 1

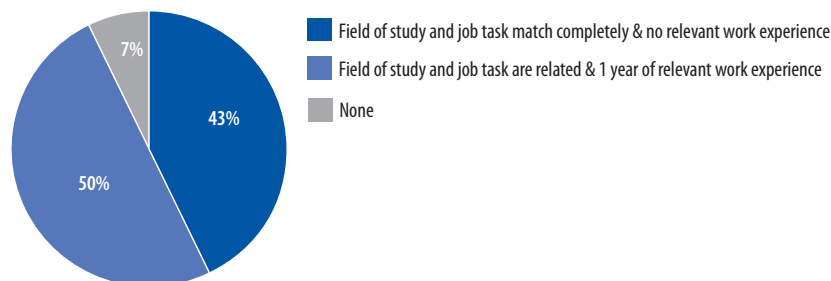


Note: Preference shares (predicted probabilities) calculated per respondent using part worth estimates and the logit rule and then averaged. Hypothetical graduates differ with regard to their field of study-job task match as well as work experience but otherwise have the same characteristics fixed at having a master's degree, no study abroad, average GPA, having graduated from an average ranked university and receiving an average starting salary. 6% of employers would choose neither of the hypothetical graduates defined here.

When the graduate with the unrelated field of study and two years of work experience is omitted from the model, most of the share is captured by the graduate with the related field of study and one year work experience (Figure 3.12). This suggests that this share of preference was driven by those employers attaching great importance to work experience and confirms that for most employers, work experience indeed compensates for 'only' having a related degree. Moreover, when given the choice, employers rather prefer graduates that have work experience and only a 'related' field of study over graduates without work experience.

Figure 3.12

Trade-off between Match of the field of study and the job task/Relevant work experience, 2



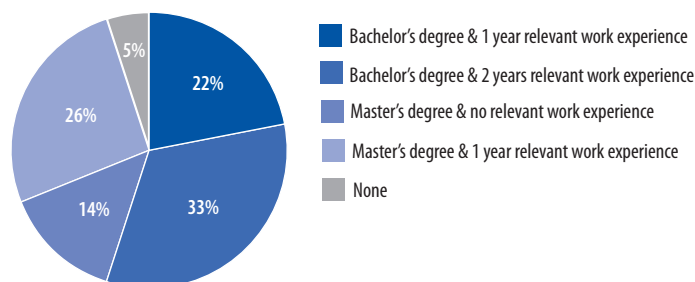
See note figure 3.11.

Degree vs. work experience

"A bachelor's degree with two years of work experience and a master's degree with one year [...]. Actually, these two should be regarded as equal" (8, ICT, Public administration, The Netherlands)

Figure 3.13

Trade-off between Degree/Relevant work experience



See note figure 3.11.

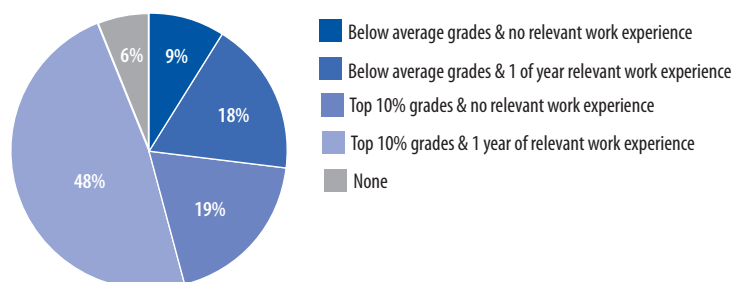
One of the most interesting questions the conjoint study can answer is whether acquiring relevant work experience is more important for employability than getting an additional degree. The words of the Dutch employer quoted above seem to reflect the preference of the average European employer in this study. Indeed, employers' preference for graduates with a bachelor's degree and two years of work experience is comparable to their preference for graduates with a master's degree and one year of work experience, with the bachelor with the two years of work experience even having some advantage. Of the graduates presented in Figure 3.13¹³, the least preferred is the one with a master's degree and no work experience. This is not surprising given employers' rather modest preference of master's degrees over bachelor's degrees, and their strong preference of relevant work experience over no relevant work experience.

Grades vs. work experience

"If you are a good student, then we do not demand that much work experience." (8, R&D, Engineering, Sweden)

Figure 3.14

Trade-off between Grades/Relevant work experience



Note: The difference in share of preference between "Below average grades & 1 year of work experience" and "Top 10% grades & no work experience" is significant at the 5% level ($p\text{-value}=0.0105$). See also note figure 3.11.

In general, employers consider it risky to hire graduates with low grades. Employers interpret low grades as a signal of low motivation and low learning ability whenever there is no reasonable alternative explanation. As Figure 3.14 indicates, grades are of particular importance for recent graduates without work experience. GPA is one of the main attributes with which these graduates can signal their general ability, motivation, and perseverance to employers. The share of preference of candidates with top 10%

13. Overall, the least preferred graduate would be one with a bachelor's degree and no work experience. This type of graduate was excluded from the calculations of shares of preferences in Figure 3.13.

grades and no work experience is 10% higher than the share of employers who would choose the candidate with below average grades and no relevant work experience.

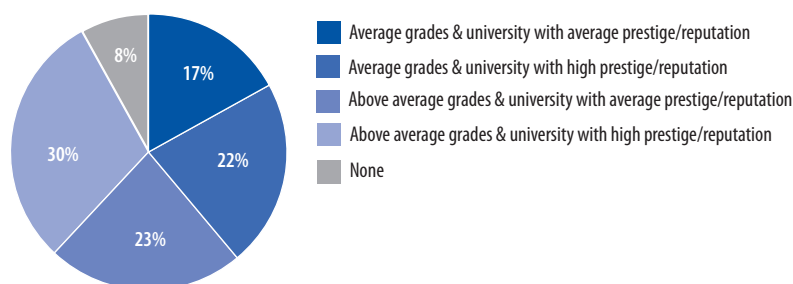
However, once graduates with low grades can demonstrate that they have worked in the field, grades become less important and work experience becomes the main indicator of future job performance for employers. As shown in Figure 3.14 graduates with top 10% grades but no work experience and graduates with below average grades and one year of relevant work experience have very comparable chances to get invited for a job interview. In this regard, work experience can compensate for low grades. We have to keep in mind, however, that the chances to acquire work experience is much more difficult for graduates with low grades than for graduates with high grades. To some extent, graduates with low grades have to invest one year longer in their human capital than graduates with high grades in order to signal the same level of employability to employers.

Grades vs. prestige of university

"The credibility of grades is linked to the ranking of the university" (3, R&D, Engineering, The Netherlands)

Figure 3.15

Trade-off between Grades/The university's prestige or reputation



Note: The difference in share of preference between "Average grades & university with high prestige/reputation" and "Above average grades & university with average prestige/reputation" is statistically significant at the 10% level (p -value=0.0629). See also note figure 3.11

Many employers indicate that the signalling value of grades is strongly linked to the prestige or reputation of the university. Employers feel that universities differ with regard to their grading standards. They argue that the signalling value of grades can be significantly improved when taking into account the prestige or reputation of a university. Employers assume that it is harder to get high grades at universities with a good reputation. Consequently, the shares of preference presented in Figure 3.15 suggest that graduates with average grades from a top ranked university are as attractive to employers as graduates with above average grades from an average ranked university.

Recalling the large difference between part-worths of below average grades and average grades, it is clear that having attended a university with high prestige/reputation cannot compensate for below average grades. A graduate with below average grades from a university with high prestige/reputation will be less attractive to employers than a graduate with average grades from a university with average prestige/reputation (not in this figure). Similarly, the small difference between the part-worths of above average grades and top 10% grades indicates that the average employer will prefer

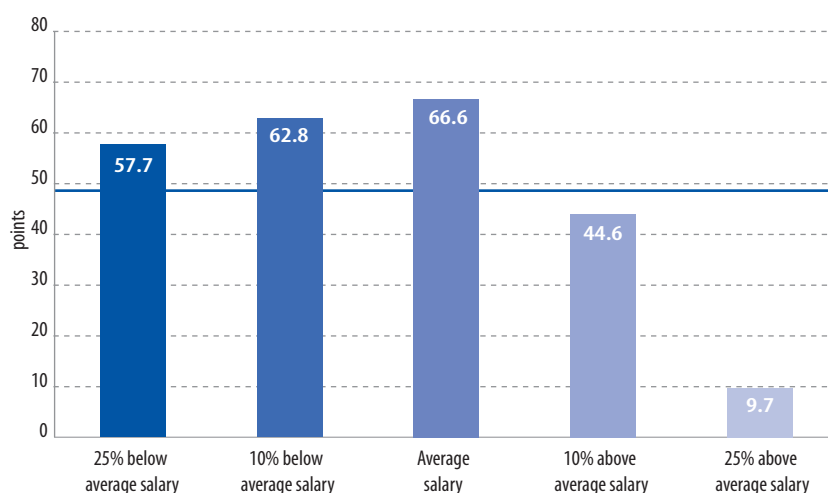
graduates with above average grades from a university with high prestige/reputation over graduates with top 10% grades from a university with average prestige/reputation.

3.5 The price of attributes

The conjoint profiles also contained the salary the candidate would be paid as an attribute. This was done in order to have an indicator of price in the model. Many interviewees indicated that, in daily practice, the salary does not play a role in the first step of the recruitment process. Therefore we excluded this attribute from the calculation of relative importance of the previous attributes in order not to distract the reader from the really important attributes. As all attributes have a correlation of zero by design, excluding the salary attribute does not change the relative importance ranking of these other attributes. In this section we use information gathered with respect to salary to give an impression of employers' willingness to pay for particular attribute levels.

Figure 3.16

Employers' preference structure with regard to salary (rescaled part-worths)



Often the salary is only negotiable within narrow boundaries, if at all. And even if salary is negotiable, employers feel that salary is not the most important criterion for the allocation of graduates to jobs, neither for employers nor for graduates.

"In private sector salary is negotiable if the candidate is very good. It is never the first criterion, maybe later if I have let's say three last candidates on the table ... and if this person really wants to come to work for us, he/she could change the initial wish also." (7, Media and Communication, Media, Estonia)

As Figure 3.16 suggests, asking for more salary is lowering the attractiveness of graduates. Yet employers are prepared to pay more when graduates are worth it.

"If someone is asking for above their salary, it is probably because they are good and they know their worth. I like that so the money doesn't bother me." (10, Policy, Policy Trust, United Kingdom)

A lower than average starting salary does not increase graduates' chances to get invited for a job interview. On the contrary, employers tend to read a negative signal into a below average starting salary. In conjoint analysis, this phenomenon is known as the endogeneity of the cost attribute: when employers find the starting salary of a particular graduate profile unrealistically low given the quality of its CV, they tend to link this to unobserved factors like motivation or self-confidence.

"It [asking for less than average] shows a lack of ambition." (10, Legal, Telecom, France)

"If someone is asking for 25% lower than I would think that is a bit strange. Why? Why say I will work for bottom dollar when you should expect more?" (7, R&D, Occupational Medicine, United Kingdom)

In our case, the fact that a below average starting salary is interpreted as a negative signal by some employers suggests that in many cases graduates cannot 'buy' themselves into a job interview.

Employers' interpretation of above average salary seems to be cleaner. Part-worths are decreasing linearly from the average salary level to the 25% above average salary level. Assuming that employers do not associate any particular (unobserved) graduate characteristics to asking for more than average salary (i.e. salary is a pure price indicator), or at least that positive signals and negative signals average out¹⁴, we are able to use these results to attach a price to other attributes and their levels. The underlying mechanism for this relation is that employers are willing to pay for certain attribute levels because these levels are expected to be associated with worker's productivity.

Figure 3.16 indicates that a 10% salary increase (from average to 10% above average) is associated with a drop of 22 rescaled part-worth points. This means that employers would be indifferent about paying an above average salary if graduates possessed characteristics which can compensate for the drop in utility caused by the higher salary. Along these lines, if employers had the choice between two similar graduates, one of whom has no and one of whom has one year of relevant work experience, the price of one year of relevant work experience would be the salary difference between the two graduates which would make employers indifferent about the two options. The part-worth difference between no relevant work experience and one year of relevant work experience is 28.3 points. Recalling that a 10% wage increase is equivalent to a drop of 22 points, the wage difference which would make employers indifferent about the two graduates is roughly 13% ($28.3 \times 10\% / 22$). This simple calculation suggests that the average employer would be willing to pay an additional 13% of the average junior position salary for the first, and some 5% ($10 \times 10\% / 22$) for the second year of relevant work experience. Employers' willingness to pay 13% more salary for the first year of relevant work experience is substantial and may be more than we would expect on the basis of higher human capital alone. This supports the conclusions made earlier that relevant work experience does not only signal higher human capital but also conveys important information on graduates' ability to integrate into work life in general. Employers are willing to pay for the reduced risk of employing graduates with false expectations about work-life.

14. The following quote illustrates that employers can associate both positive and negative signals with asking more than average salary: *"If a candidate expects a high salary, I'm looking for why this is. [Whether] they ... are somehow mistaken, or just ambitious."* (1, Financial services, Finance, Czech Republic)

Table 3.5

The price of CV attributes, selection

Difference CV attribute level	Difference (rescaled) part-worths	Difference in % of average salary
Match of field of study and job task: complete vs. related	21.1	9.6
Relevant work experience: 1 year vs. no	28.3	12.9
Relevant work experience: 2 years vs. 1 year	10.0	4.6
Study abroad: partly vs. no	6.4	2.9
Above average GPA vs. average GPA	8.5	3.9
University's prestige/reputation: high vs. average	8.3	3.7
Master's degree vs. bachelor's degree (Sweden)	1.8	0.7
Master's degree vs. bachelor's degree (Poland)	17.4	9.8

Note: Salary differences of master's versus bachelor's degrees in Sweden and Poland were calculated using the country-specific part-worth difference associated with a 10% salary increase (24.7 and 17.7 respectively).

Obviously, this method is very rough and neglects differences across segments of employers. The results should therefore be taken with a grain of salt. Yet, the value of this approach lies in the ability to express differences in part-worths in familiar notions of price. Applying this method to other attributes (see also Table 3.5) suggests that the average employer is willing to reward a complete match of the field of study with the job task (as opposed to a related field of study) with some 10% of the average junior position salary, having partly studied abroad (as opposed to having spent the entire time of study at home) with some 3%, above average grades (as opposed to average grades) with some 4%, and having graduated from a university with high as opposed to average prestige/reputation with 4% of the average junior position salary. The value of holding a master's degree as opposed to a bachelor's degree varies substantially across countries and ranges from a low 1% of the average junior position salary in Sweden to some 10% of the average junior position salary in Poland.

3.6 Conclusion

When selecting graduates for job interviews on the basis of CV attributes employers attach most importance to attributes which signal familiarity with the job task and low training costs: the match between the field of study and the job task, as well as relevant work experience. Graduates' chances to get invited to a job interview increase substantially with the quality of the field of study-job match and with the amount of relevant work experience. Graduates with fields of study unrelated to the job task only have an outside chance to get invited to the job interview. Having graduated in a field of study not completely matched but related to the job task can be compensated with relevant work experience. Chances of getting invited to a job interview decrease significantly for graduates without relevant work experience.

On a European average, graduates' employability signalled by a bachelor's degree and a master's degree is similar, yet substantial differences across countries exist. In the Netherlands and Sweden employers on average seem to be almost indifferent about inviting graduates with a bachelor's degree or a master's degree to job interviews. And while in Spain and the United Kingdom, employers prefer graduates with a bachelor's degree over graduates with a master's degree when making a selection for invitations to a job interview, in all the other countries, the master's degree is often considered the standard and most common degree, and recruitment strategies seem to reflect

this. Graduates not having a master's degree seem to be able to compensate this disadvantage with having a year of relevant work experience.

Doctorate degrees are only attractive for employers who are looking for graduates with specialized knowledge in their field and an elevated theoretical orientation. In the case of junior positions that require less theoretical knowledge, employers prefer a bachelor's or master's degree as they consider this a better match for the jobs they offer.

Grades matter for getting invited to a job interview. Below average grades signal a substantially lower level of employability than average grades. Above average grades increase graduates' chances to get invited to a job interview to a similar extent as does being among the top 10%. Excellent grades are especially important for graduates who lack work experience. Conversely, work experience can compensate for having below average grades.

The prestige or reputation of the university from which graduates obtained their degree also matters, and the impact is comparable to having above average instead of average grades. Employers often use a university's prestige or reputation to validate the meaning of grades.

Employers appreciate graduates having studied abroad as a signal of positive personality characteristics such as openness to experience and independence. Employers most often prefer job applicants who have done part of their study abroad, followed by those who had done their entire study abroad. Yet, they emphasize that this attribute is never a decisive criterion in the selection process but can only tip the balance once other characteristics have been satisfied.

Overall, employers cluster surprisingly little along the lines of categories which are often used to characterize them. Apart from their evaluation of graduates' degree and time spent studying abroad, employers' preference structure does not substantially differ across common segments such as country, occupational field or firm-size. The results suggests – and this runs like a common thread through the entire analysis – that employers have very diverse needs and cannot easily be put into simple categories.



4 Which skills get graduates the job?

4.1 Introduction

Conditional on having been selected for the job interview in the first step of the recruitment process, observed skill endowments, not (ambiguous) signals, determine whether graduates get hired for the job on offer. Based on the analysis summarized in section 2.2, we identified six skill areas which cover very well the tasks graduates are expected to perform in the 21st century. These skill areas are: professional expertise, general academic skills, innovative/creative skills, strategic/organizational skills, interpersonal skills and commercial/entrepreneurial skills. While professional expertise refers to the more specific knowledge and skills needed to solve occupation-specific problems, general academic skills are here defined as analytical thinking, reflectiveness, and the ability to see the limitations of one's own discipline. The ability to come up with new ideas and to approach problems from a different angle has been summarized as innovative/creative skills. Strategic/organizational skills describe the ability to act strategically towards the achievement of organizational goals and priorities. Interpersonal skills refer to the ability to work in a team and communicate and cooperate effectively with diverse colleagues and clients. Commercial/entrepreneurial skills refer to the ability to recognize the commercial value of an idea and to search for and pursue opportunities to turn them into successful products.

In the second step of the conjoint analysis, employers were informed that they had selected a pool of candidates who had all passed the first round and were thus considered able to do the job. After they passed the job interviews, they had been sent to an assessment centre which assessed the skill levels of the candidates in the six areas mentioned above. Employers were now told that the profiles presented to them in the conjoint study were the reported results from the assessment centre. They were asked to evaluate these graduate profiles and indicate who they would hire for the job. Again, the profiles contained an indication of the salary the employer would have to pay in addition to graduates' skill levels. In the following, we present the conjoint study results for the relative importance of these skill types and employers' preference structure with regard to the skill levels.

4.2 Which skills are most important?

All skills under scrutiny in this chapter share the same specification of attribute levels (bottom 25%, average, top 25% of their group). The limitations with regard to the informative value of the relative importance of attributes found in chapter 3 do therefore not apply. The conjoint study reveals the following relative importance ranking with regard to graduates' chances to get hired for the job:

- Professional expertise (19.5%)
- Interpersonal skills (19.1%)
- Commercial/entrepreneurial skills (17.6%)
- Innovative/creative skills (16.0%)
- Strategic/organizational skills (14.2%)
- General academic skills (13.7%)

In general the differences in importance between the different skill areas are not very large and certainly less large than the differences we noted earlier with regard to the CV attributes. This means basically that all skill areas are considered important, although there are some slight differences. Skills can be grouped into three groups according to

their importance. Professional expertise and interpersonal skills are relatively the most important skills, each explaining more than 19% of the variation in employers' choices. Commercial/entrepreneurial skills and innovative/creative skills form the medium group. Strategic/organizational skills and general academic skills form the group of the relatively least important skills in this context.

The conjoint study as well as the in-depth interviews with employers suggest that of the six above mentioned skills, the level of professional expertise and/or interpersonal skills most often 'tipped the balance' for (or against) a certain candidate. In fact, the in-depth interviews show that these skills are often considered indispensable, so that almost no employer would even consider hiring a candidate if he or she had a low level of either of these two skills. Moreover, many employers require all successful applicants to possess these skills at a high level. Professional expertise is considered very important because it is seen as an indicator of how fast someone will be able to work at full speed and learn new things. Interpersonal skills are considered very important because people have to be able to work productively in teams.

Commercial/entrepreneurial skills and innovative/creative skills have medium relative importance. Whereas employers require all graduates to have at least an average level of professional expertise and interpersonal skills, not every graduate needs to be a top entrepreneur or an innovator because in most occupational fields these skills do not have to be used that often in the daily work. Still, for those occasions in which these skills are necessary to complete certain tasks, there must be someone within the team with a sufficient level of these skills. This means that, depending on the available skills within the team in which the candidate will be working, possessing these skills at least at an average level may give the individual candidate an essential comparative advantage.

Strategic/organizational skills and general academic skills have the lowest relative importance. Strategic/organizational skills are typically only expected of more experienced employees and therefore not highly important for junior positions. An exception is jobs in the field of strategy and consulting. General academic skills are typically seen as being less important than specific professional expertise. In addition, employers assume that every candidate who successfully graduated from HE has a level of general academic skills sufficient for doing most graduate jobs. On the whole, while differences of relative importance between various skill types exist, the size of these differences is moderate in the sense that there is no one deal-breaking skill. Although professional skills and interpersonal skills are clearly most important, employers are looking for round profiles rather than extremes.¹⁵

Relative importance by segment

Tables 4.1 to 4.4 show the ranking of the relative importance of skill domains for countries, occupational fields, the market level organizations are operating on, as well as firm-size. Similar to the relative importance of CV attributes, rankings are stable across and within these employer segments. Again, the minor differences we find do not

15. The study design dedicated a specific section of the in-depth interviews to employers' experiences with skill deficits when recruiting HE graduates. The intention was to identify common or country and occupational field specific skill deficits which could potentially be addressed by HE. From the answers given, however, no systematic skill deficits could be identified. Employers' experiences vary substantially and are often contradictory. This heterogeneity among employers is the main reason why no specific skill deficits were found.

seem to be systematically related to institutional differences across countries¹⁶, such as differences in labour market institutions or in HE systems.

Table 4.1

Relative importance of skill domains, ranking by country

	CZ	FR	DE	IT	NL	PL	ES	SE	UK
Professional expertise	1	1	1	3	2	1	2	2	2
Interpersonal skills	2	2	2	2	1	2	3	1	1
Commercial/entrepreneurial skills	3	3	3	1	3	3	1	4	3
Innovative creative skills	4	4	4	4	4	5	4	3	4
Strategic/organizational skills	6	5	5/6	6	5/6	4	5	5	5
General academic skills	5	6	5/6	5	5/6	6	6	6	6

Note for tables 4.1 to 4.4: Skills having the same ranking indicates that their relative importance in per cent is equal up to the first decimal place. As tables are for illustrative purposes only, rankings have not been checked for statistical significance.

Table 4.2

Relative importance of skill domains, ranking by occupational field

	Finance	Engineering	Electro- technology	ICT	Media and Communication	Legal	Policy
Professional expertise	2	1	3	1	1/2	1	2/3
Interpersonal skills	1	2	1	2	1/2	2	1
Commercial/entrepreneurial skills	3	3	2	3	3	3	2/3
Innovative creative skills	4	4	4	4	4	4	4
Strategic/organizational skills	5	5	5	5	5	5	5
General academic skills	6	6	6	6	6	6	6

Table 4.3

Relative importance of skill domains, ranking by market scale

	Local	Regional	National	International
Professional expertise	2	1	1	1
Interpersonal skills	1	2	2	2
Commercial/entrepreneurial skills	3	3	3	3
Innovative creative skills	4	4	4	4
Strategic/organizational skills	5	5	5	6
General academic skills	6	6	6	5

Table 4.4

Relative importance of skill domains, ranking by firm size (number of employees)

	<20	20-49	50-99	100-249	>=250
Professional expertise	2	1	1	1	2
Interpersonal skills	1	2	3	2	1
Commercial/entrepreneurial skills	3	3	2	3	3
Innovative creative skills	4	4	4	4	4
Strategic/organizational skills	5	6	5	5	5
General academic skills	6	5	6	6	6

16. An exception is that commercial/entrepreneurial skills seem to rank higher in the South-European countries (Italy and Spain) than in the other countries.

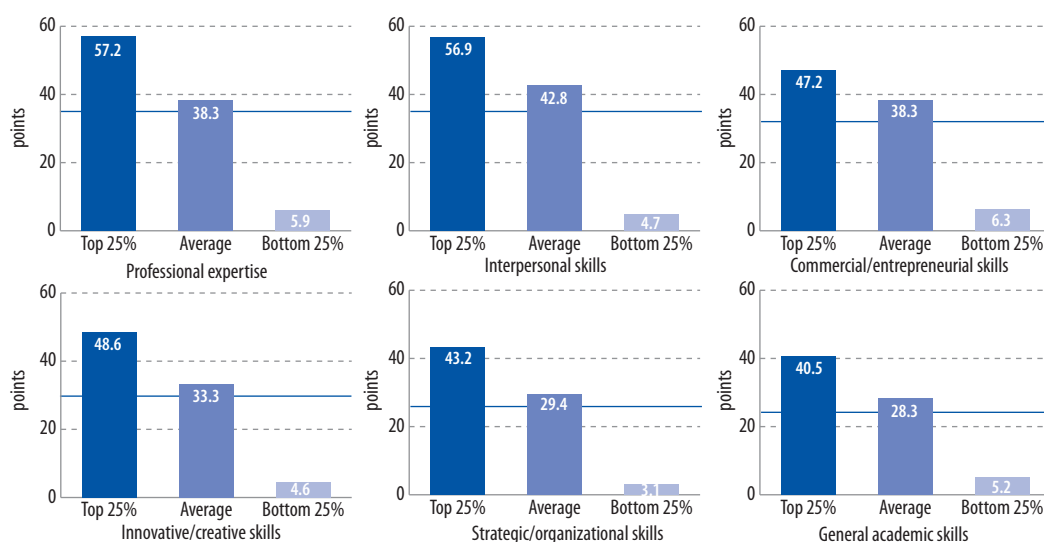
4.3 Which skill levels are most important?

General findings

In the following, we present the conjoint study results for skills, that is, the rescaled part-worths (points) associated with a particular skill level, all other things being equal. The bar charts look very similar across skills (see Figure 4.1). There are no substantial differences between countries or occupational fields. Graduates within the top 25% group of a particular skill are always preferred over graduates in the average group, who in turn are always preferred over graduates in the bottom 25% group. The (rescaled) part-worths are by far highest for graduates with the highest skill level. The relation between points values associated with particular skill levels differs slightly across skills. While the points of the bottom 25% group are stable at around zero (indicating that graduates who fall in this group have a very low chance of being hired), the dominance of the top level is larger for some skills (professional expertise, interpersonal skills) than it is for others (general academic and commercial/entrepreneurial skills). This can be interpreted as the degree to which an average skill level is regarded as sufficient or the extent to which graduates are rewarded for having a top skill level. Of all six domains, the difference in employability between average graduates and the top 25% is highest for professional expertise (18.9 points) and lowest for commercial/entrepreneurial skills (8.9 points). For the other domains the difference ranges between 12.2 points (general academic skills) and 15.3 points (innovative/creative skills). The difference in points between the lowest and the average skill level is largest for interpersonal skills (38.1 points) indicating that having at least an average level of interpersonal skills is particularly important for graduates' employability.

Figure 4.1

Overview preference structure skills levels (rescaled part-worth)



Professional expertise

Professional expertise: knowledge and skills needed to solve occupation-specific problems.

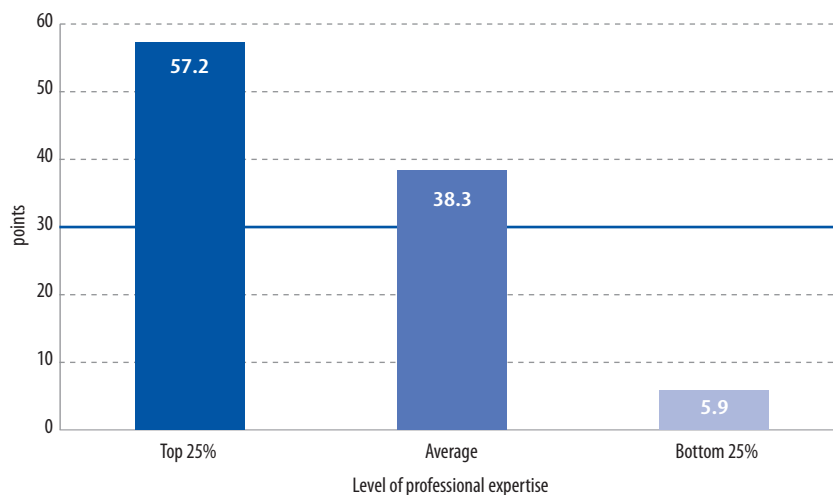
Professional expertise belongs to the skills most valued by employers. It is the skill employers have in mind when screening graduates' CVs with regard to the match between the field of study and the job tasks as well as relevant work experience. Professional

expertise is strongly linked to the time it will take a graduate to be work ready and the investment the organization will have to make. Consequently, employers are often unwilling to hire graduates below what they see as a threshold level. The threshold is often defined as knowing the basics and being familiar with standard practices in the field.

"If they still have to discover things that we regard as standard practice, then it will be difficult." (1, ICT, Business services, The Netherlands).

Figure 4.2

Employers' preference structure with regard to the level of professional skills (rescaled part-worths)



"This [professional expertise] is a necessity. Being aware of the issues you may come across is an important skill for us. Anyone average or above should be able to achieve what we need here." (3, Electro-technology, Electro-engineering, United Kingdom)

Having a high level of professional expertise is clearly seen as an advantage. Of all six domains, the difference in employability between average graduates and the top 25% is highest for professional expertise. The difference amounts to 18.9 points.

While employers regard professional expertise as one of the most important skills, they also consider it, in contrast to some other skills, as a skill which can be improved considerably within the organization. In general, organizations are well prepared to teach juniors the (firm-) specific knowledge they lack and to invest in their expertise through learning on the job, mentoring or training courses.

"We furnish the professional part to our junior employees. That's why they are junior employees. On the other hand, a solid professional foundation is a considerable plus that makes many things much easier." (7, ICT, Energy industry, Germany)

"This knowledge and experience we are able to pass on to our employees. The most important factor is to teach an employee new skills." (3, Finance, Bank, Poland)

Interpersonal Skills

Interpersonal skills: ability to work in a team and communicate and cooperate effectively with diverse colleagues and clients.

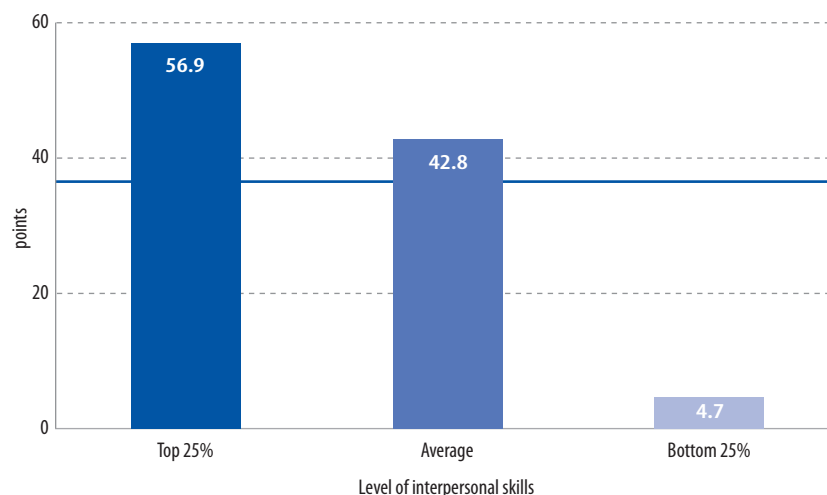
Professional expertise is very important as it pertains to the graduate's ability to master the content of the job tasks. However, professional expertise without the ability to make ideas clear to others and to fit into a team is not what employers are looking for.

"You might have a very competent person, academically capable, but if he cannot communicate or work in the team... we look at this as to how well he fits into our organization. Then we just cannot hire him." (4, Engineering, Infrastructure, Estonia)

It is therefore not surprising that interpersonal skills – the ability to work in a team and to communicate and cooperate effectively with diverse kinds of people – are extremely important in today's workplaces. Employers emphasize that well-functioning internal communication is critical for organizational success. This includes communication within teams but also between departments. Graduates have to be able to make their meaning clear to others, to approach colleagues proactively and to build up a well-functioning internal and external network. Dysfunctional communication has immediate ramifications for all kinds of internal processes and will directly affect organizational performance.

Figure 4.3

Employers' preference structure with regard to the level of interpersonal skills (rescaled part-worths)



"In a company with 16 people, you cannot put an element that is not able to work with the others, it spoils the whole environment." (3, Legal, Legal firm, Italy)

"We don't do research in splendid isolation. You have to be able to have a network in your area of specialization to remain alert to things happening outside the company. We have two profiles here. The first we call expert which refers more to the classical researcher. The second we call connector. These are people who [...] really want to translate things into business, and they find that important. The second profile is becoming more and more vital. [...] We need people who can talk to the business units." (1, R&D, Multinational, The Netherlands)

The importance of good interpersonal skills for employability is reflected in some employers' hiring practice which makes the positive evaluation of a candidate's personality and team-work qualities by future team-members a prerequisite for a positive hiring decision. In contrast to presentation skills, social skills in terms of being somebody who

can fit in a team quickly are not seen as something that can be learned easily. This also explains the high importance of interpersonal skills in the recruitment process.

"Somebody who cannot give a good presentation or who is not well trained in presenting him or herself... we would take this into account but we would not put too much weight on it. We know that we offer intensive training in this area. What matters more to us is that a plurality of our employees in the area for which we are recruiting is positive about being able to work with this person. This is really important to us as one spends quite some time here and it really should fit together well." (1, Legal, Multinational law firm, Germany)

"Improving interpersonal skills is a more complex problem. This is not an issue of one training or manager's assistance, like with regard to the organization of the work place." (10, Engineering, Engineering, Poland)

In a service oriented economy, the importance of interpersonal skills is not restricted to internal communication but also involves external communication with clients.

"Finance is not just about figures.the goal is to create relationships with customers and investors, in the long term." (8, Finance, Financial services, France)

Exceptions, of course, exist. The employability of graduates who will be working on investigative tasks or tasks not involving substantial amounts of interactions with colleagues or clients will not depend on their level of interpersonal skills.

"If we are looking for a software developer then interpersonal skills are not important." (5, ICT, ICT, Estonia)

Commercial/entrepreneurial Skills

Commercial/entrepreneurial skills: ability to recognize the commercial value of an idea and to search for and pursue opportunities to turn them into successful products.

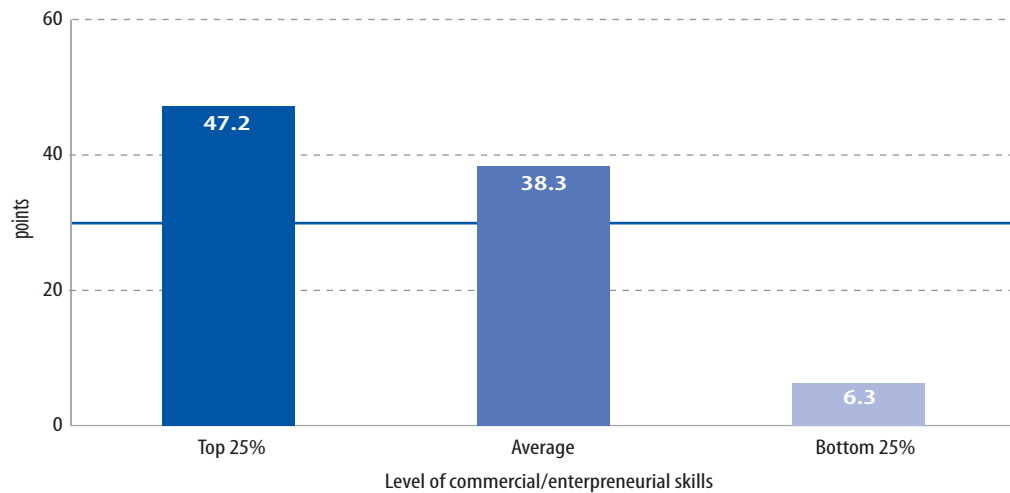
In contrast to professional expertise or interpersonal skills, it is remarkable that the difference in points between the top 25% level and the average level of commercial/entrepreneurial skills is relatively small. While this difference is 18.9 and 14.1 points for professional expertise and interpersonal skills respectively, the difference amounts to only 8.9 points for commercial/entrepreneurial skills. This indicates that employers – more than with regard to the other two skills – consider an average level sufficient and do not put the same emphasis on top level skills.

"In order to be able to recognize the value of an idea he or she has first to be exposed to a number of ideas. As you understand, he or she has to work with us for a while so as to develop this skill." (5, ICT, ICT, Greece)

This does not mean that employers do not value this skill at all. To the extent that employers expect graduates to develop in the future they appreciate graduates with commercial and entrepreneurial spirit who will be able to contribute to the organization's commercial success more actively in the long term. Moreover, employers appreciate if graduates know that they are operating in a competitive environment. In contrast to professional expertise and interpersonal skills, however, not every graduate is equally expected to have commercial/entrepreneurial skills.

Figure 4.4

Employers' preference structure with regard to the level of commercial/entrepreneurial skills (rescaled part-worths)



Commercial/entrepreneurial skills are generally regarded as less important than professional expertise and interpersonal skills, especially in the early stage of the career. Employers tend not to expect high levels of this skill from recent graduates as they will not be given great responsibility in this regard. Rather, employers feel that graduates' sensitivity to the commercial value of new ideas comes with experience.

"At our company, an engineer does not need to give thought to commercial considerations. There are specialists for that. There should be a certain basic understanding, but we don't demand more than that." (3, Engineering, Automotive, Germany)

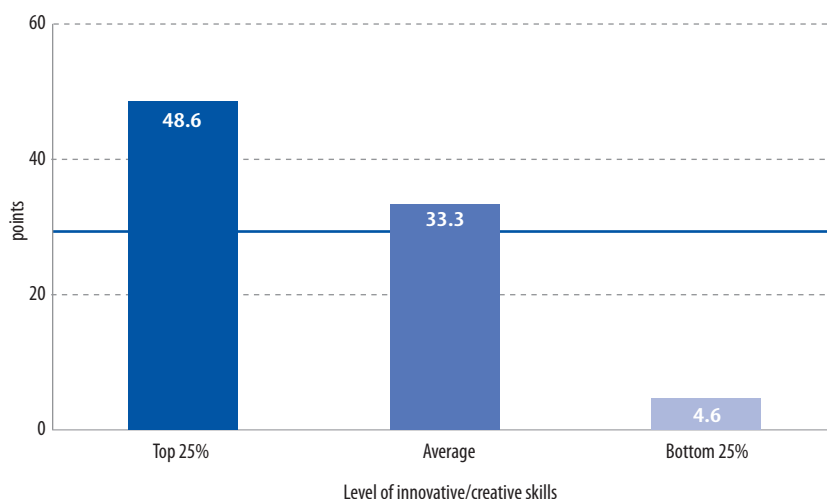
"We do not ask for this skill because it does not need to be considered for junior positions. However, if one were in the top 25% for this skill, it could be useful in the future in some client account position." (2, ICT, ICT, Czech Republic)

Innovative/creative skills

Innovative/creative skills: ability to come up with new ideas and to approach problems from a different angle.

Figure 4.5

Employers' preference structure with regard to the level of innovative/creative skills (rescaled part-worths)



Innovation and creativity is not a core task of most junior positions. Many employers therefore do not expect recent graduates to be particularly innovative or creative and do not consider this skill a main priority. Nevertheless, many employers associate being a recent graduate with the advantage of not having been 'spoiled' yet. Although recent graduates are beginners in their field, a fresh perspective and new solutions to old problems is one thing they can contribute to the organization right away.

"I am not sure whether you should expect innovation from a junior. Though it is good when somebody contributes new ideas." (10, Legal, Health and Welfare, The Netherlands)

"While we are not going to tell them they can't be creative, at this stage it wouldn't hold any advantage from one candidate to the other." (7, R&D, Occupational Medicine, United Kingdom)

On the one hand, innovative and creative skills are naturally in high demand for jobs which have innovation and creativity at their core, such as positions in R&D or advertising. Too much innovative and creative potential, on the other hand, is sometimes seen as potentially counter-productive and risky. Graduates with high levels of this skill may get bored or frustrated easily when having to work in a highly regulated work environment.

"Average creative skills would be perfect. An accountant cannot be too creative... maybe he or she will start changing programmes then." (1, Finance, Infrastructure, Estonia)

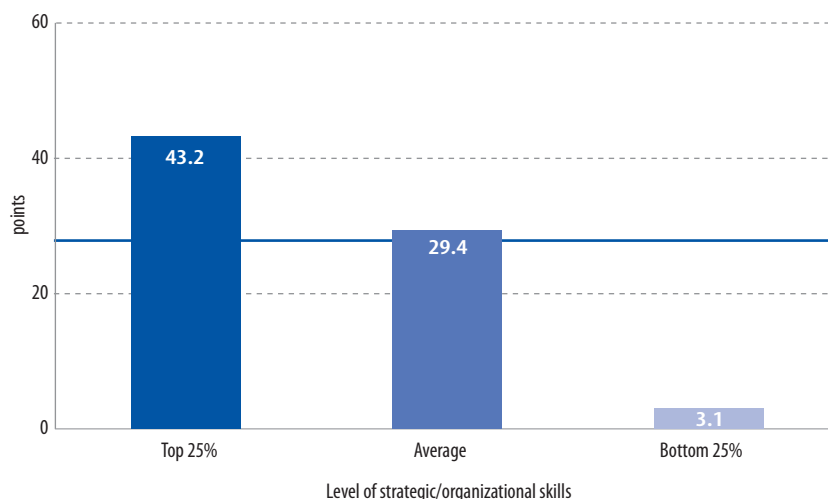
"It's good when a candidate has an opinion, but we have clearly specified limits. The company does not have much appreciation for somebody wanting to change the system, do it differently. The system has been working for 15 years; thousands of people have done it this way, so it has been proven to work. When someone does it differently, there is a high possibility they will not succeed." (1, Finance, Financial services, Czech Republic)

Strategic/organizational skills

Strategic/organizational skills: ability to act strategically towards the achievement of organizational goals and priorities.

Figure 4.6

Employers' preference structure with regard to the level of strategic/organizational skills (rescaled part-worths)



Strategic/organizational skills are considered one of the least important skills relative to the others. Employers argue that juniors' autonomy is rather limited and that alignment to organizational strategies and priorities is mostly ensured by senior staff. In general, recent graduates are integrated into teams upon arrival and are given assisting roles until they acquire sufficient experience to work more independently. Employers generally regard strategic/organizational skills as not essential for junior positions. Yet they acknowledge that these skills can help new employees learn and internalize the organization's objectives as well as maintain a certain degree of discipline towards the organization's priorities. This is also reflected in the fact that graduates with very low strategic/organizational skills have a low chance of being hired. Commitment to corporate strategy and the ability to integrate into organizational processes is considered advantageous for graduates' chances of becoming team leaders and their growth and future career within the organization.

"A pronounced feel for strategy is certainly interesting, but it rates below other criteria, at least in a junior employee." (6, Finance, Financial services, Germany)

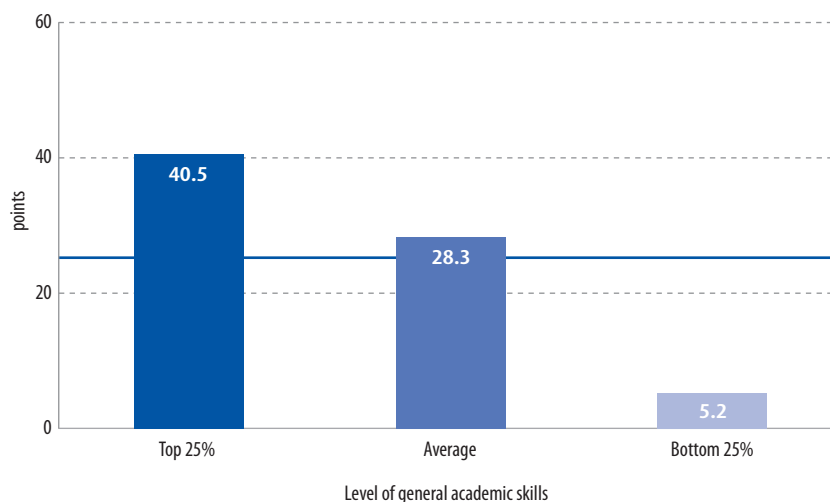
"Juniors are generally followers. But if we plan to let them grow, then they must also have this." (4, Engineering, Industry, Ital)

General academic skills

General academic skills: analytical thinking, reflectiveness, and the ability to see the limitations of one's own discipline.

Figure 4.7

Employers' preference structure with regard to the level of general academics skills (rescaled part-worths)



General academic skills are mostly associated with HE and with having an academic degree. General academic skills encompass analytical thinking and reflectiveness, yet are often also associated with intelligence and a general aptitude to learn.

"If he hasn't got academic skills, it indicates to me that he was a bad student." (1, Finance, Financial services, Greece)

Employers consider general academic skills the least important kind of skills of the skill areas under scrutiny in this study. Employers acknowledge the importance of

analytical thinking and reflectiveness in the general working process and in the solving of unforeseen problems. Yet many also point to the intangibility of general academic skills, especially compared to professional expertise.

"I always rate general academic skills lower; they don't guarantee anything for me." (10, Engineering, Engineering, Spain)

There is, of course, heterogeneity among employers. Whereas – apart from their specialized knowledge – analytical thinking is what employers interested in doctorates are looking for, other employers prefer practically oriented juniors. In line with some employers' reservation toward doctorates, there is evidence of some employer's tendency to equate general academic skills with a lack of practical insight.

"They should not have too many of these academic skills either, otherwise they won't have enough practical insight." (3, Engineering, Engineering, Italy)

General academic skills are usually not considered most crucial for hiring, nevertheless they play quite an important secondary role in making a decision between two similar candidates as they say quite a lot about a candidate's potential. The absence of general academic skills is usually interpreted as low autonomy and low flexibility. This is in general not a big barrier for junior positions but can hamper an employee's future development.

"It is important for young graduates. It foretells good things." (4, Finance, Financial services, France)

International orientation

International orientation: Proficiency of foreign languages and intercultural skills, that is the ability to work with people from different cultural backgrounds and to adapt to new cultural contexts.

International orientation was not part of the profiles used in the second step of the conjoint study. It was, however, implicitly contained in the attribute 'study abroad' in the first step and discussed in the in-depth interviews. Similar to experience of studying abroad in the first step of the conjoint study, international orientation is a tipping factor rather than a make or break in the hiring process according to the in-depth interviews. Still heterogeneity among employers is substantial and for some mainly internationally operating employers, a sufficient level of international orientation is a prerequisite for getting the job.

"Internationalization is not a trend anymore, it's a fact." (1, Legal, Multinational law firm, Germany)

"International orientation is great, but somewhat less important for one of our financial professionals. ... It's nice to have, but is not needed per se." (7, Finance, Bank, The Netherlands)

Other relevant skills

In line with findings of other employer surveys, results from the in-depth interviews indicate that often basic (national) language skills or personality traits such as punctuality are lacking. Screening on these traits and basic skills therefore may also play a role in the

recruitment process. However, this study explicitly focused on the relative importance of graduate skills which can potentially be produced in HE and therefore excluded these attributes from the profiles used in the conjoint study. By asking respondents to evaluate the differing conjoint study profiles assuming that candidates are all equally suited to do the job otherwise, the study design controls for possible other attributes relevant in the recruitment process. The in-depth interviews did not indicate that a major skills domain that could be developed in HE was lacking.

4.4 Can one skill compensate for another?

This section attempts to give insights into how different combinations of skill endowments influence graduates' chances to get the job. In general, one can observe that a skill's relative importance determines possibilities for compensating having low levels of it. For example, shortcomings in the most important group of skills – professional expertise and interpersonal skills – can hardly be compensated by extraordinary levels of skills with the lowest importance – general academic and strategic/organizational skills.

General academic skills do not always compensate for a lack of professional expertise

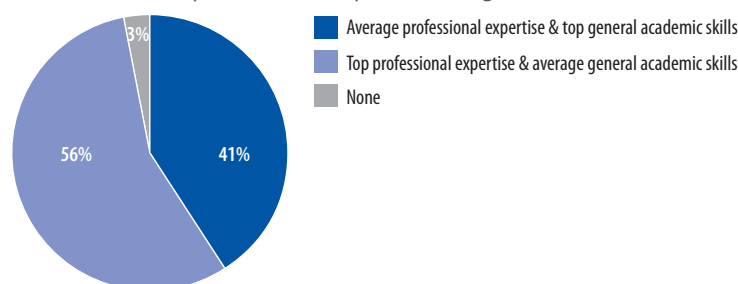
An argument often brought forward is that general academic skills can compensate for a lack of specific, professional expertise by enabling individuals to acquire missing specific knowledge and expertise quickly. Some employers indeed seem to follow this line of reasoning.

"It's good to have high general academic skills. It shows that the candidate has good potential to learn, despite them not yet having acquired a perfect level of professional expertise." (2, ICT, ICT, Czech Republic)

"If a good candidate has shortcomings in professional skills then strong academic skills can compensate this ... employer can develop graduate's professional skills by offering trainings ..." (5, ICT, ICT, Estonia)

Figure 4.8

Trade-off between professional expertise and general academic skills



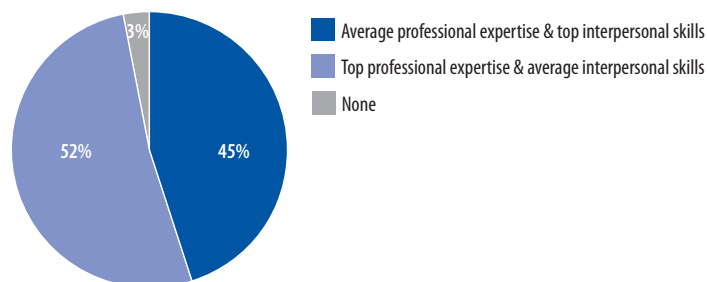
However, more than half of employers put more weight on top professional skills than on top general academic skills. Figure 4.8 shows how this preference structure translates into graduates' probabilities to get hired. 56% of employers prefer a graduate with top professional expertise and average general academic skills over a graduate with average professional expertise and top general academic skills. This supports the argument that the average employer is foremost interested in graduates who are instantly deployable.

Top level professional expertise is slightly more important than top level interpersonal skills

Professional expertise and interpersonal skills are the skills with the highest relative importance. As the slightly higher relative importance of professional expertise above suggests, having top professional expertise and average interpersonal skills gives graduates a slight advantage over graduates with top interpersonal skills and average professional expertise. This can be found back in Figure 4.9 which presents the share of preference for each combination of the two skills. All other things being equal, 52% of employers would prefer the former and 45% the latter. On average, top instead of average professional expertise is more important to employers than top instead of average interpersonal skills.

Figure 4.9

Trade-off between professional expertise and interpersonal skills, 1



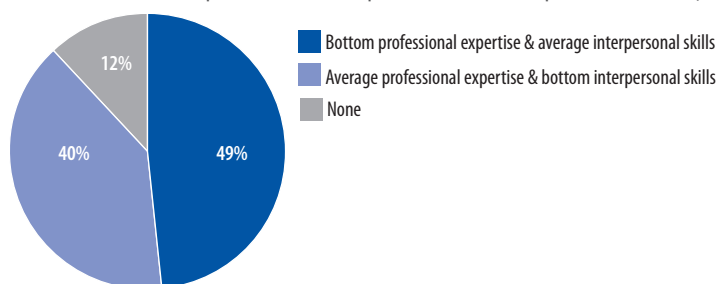
Having at least average interpersonal skills is more important than having at least average professional expertise

As could be seen in Figure 4.2 and Figure 4.3, the rescaled part-worths (points) of the average level are higher for interpersonal skills than for professional expertise. While the return to having top instead of average interpersonal skills is less than the return to having top instead of average professional expertise, having at least an average level is more important for interpersonal skills than it is for professional expertise. As can be seen in Figure 4.10, graduates with bottom level professional expertise but average level interpersonal skills have an advantage over graduates with average professional expertise and bottom level interpersonal skills when applying for a job.¹⁷ Employers seem to attach a lot of importance to graduates having at least average interpersonal skills and seem to punish a lack of this skill more than a lack of professional expertise. As discussed above, this preference structure of employers can be explained by the wide ranging consequences of hiring a person with bottom level interpersonal skills for team spirit and communication, the increasing importance of the interaction with customers and clients, and the fact that most employers assume that it is more difficult to train graduates with regard to interpersonal skills (excluding presentations skills) than it is to increase their level of professional expertise.

17. Note that some 12% of the employers would take the 'none' option, which indicates that they regard average levels in BOTH domains as the minimum requirement.

Figure 4.10

Trade-off between professional expertise and interpersonal skills, 2



Balanced skill profiles are preferred over extreme skill profiles

Another interesting question with regard to trading off professional expertise and interpersonal skills is whether employers prefer extreme (top/bottom) over balanced (average/average) profiles. Figure 4.11 presents the share of preference of graduates with three different types of skill profiles competing for a job. Clearly, the graduate with the balanced profile has the highest probability to get the job (52%) and both extreme profiles are preferred by around twenty percent of the employers (21% and 22%).

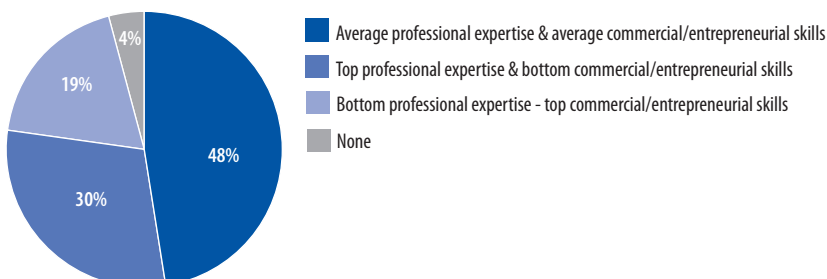
As can be seen from Figure 4.12, balanced profiles are also preferred with regard to other skill combinations, such as professional expertise and commercial/entrepreneurial skills.

Figure 4.11

Trade-off between professional expertise and interpersonal skills, 3


Figure 4.12

Trade-off between professional expertise and commercial/entrepreneurial skills



Compensating a lack of professional expertise is difficult

It becomes apparent from Figure 4.8 and Figure 4.12 that compensating comparative disadvantages in professional expertise with comparative advantages in another skill is not easily done.

Figure 4.13 explores whether comparative disadvantages with regard to professional expertise may be compensated by having comparative advantages in two, instead of one other skill area. Indeed, average professional expertise in combination with top levels of commercial/entrepreneurial and innovative/creative skills has the largest share of preference in Figure 4.13 and is preferred over top professional expertise in combination with average levels of commercial/entrepreneurial and innovative/creative skills.

Figure 4.13 also shows that it is not impossible to compensate bottom professional expertise. Graduates belonging to the bottom 25% group regarding professional expertise but belonging to the top 25% group with respect to commercial/entrepreneurial and innovative/creative skills have a higher share of preference than graduates with average professional expertise and bottom level commercial/entrepreneurial and innovative / creative skills. This, however, is likely to be one of the few constellations in which bottom level professional expertise can be compensated.

Figure 4.13

Trade-off between professional expertise and commercial/entrepreneurial and innovative skills



In conclusion, the difficulty of compensating a deficit in professional expertise remains even when having a comparative advantage with regard to two other skills. While closing the gap between average and top level professional expertise is feasible, compensating bottom level professional expertise heavily depends on the weakness of competing graduate profiles. The severe difficulty of compensating bottom level professional expertise confirms the results from the in-depth interviews which suggest that many employers consider average or even top level professional expertise a prerequisite for making a positive hiring decision.

4.4 The price of attributes

The relative importance of salary, that is, its contribution to employers' choices is comparable to that of commercial/entrepreneurial skills. In general, concluding from the conjoint study results and the in-depth interviews, salary is not the predominant factor in employers' decision which graduate to hire, although clearly exaggerated salary expectations have a strong negative effect on the probability of getting the job.

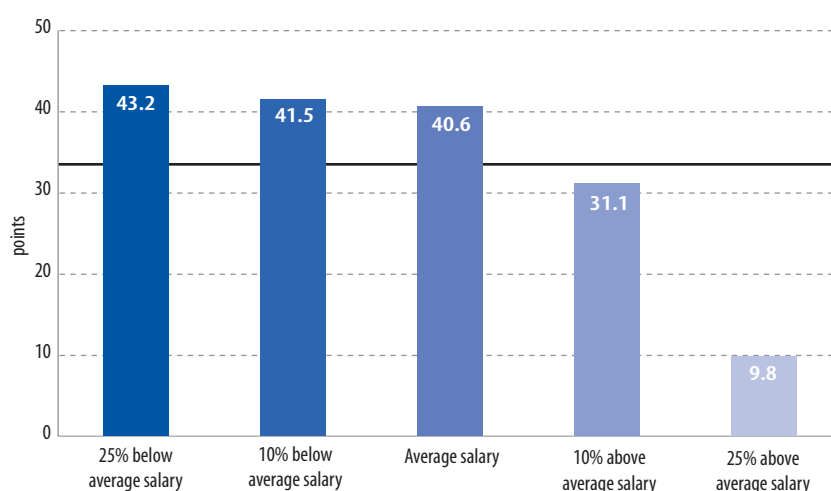
In contrast to employers' preference structure in the first step of the recruitment process, employers actually prefer graduates willing to work for less than the average salary. Differences in (rescaled) part-worths are, however, negligible. Again, paying graduates less than average does not seem to be associated with utility gains for employers. Paying less than average might often not even be an option as there are clear rules and

regulations concerning employees' pay in many firms and occupational fields. After all, and the in-depth interviews confirm this (see also section 3.5), employers seem to be willing to pay average salary if performance is accordingly.

Similar to section 3.5 for CV attributes, we will attach a price tag to having top level skills using the part-worths for salary. For the calculations, we will use 10.9 points as the equivalent of 10% of the average salary.¹⁸

Figure 4.14

Employers' preference structure with regard to salary (rescaled part-worths)



Again, we have to keep in mind that this method is very rough and primarily for illustrative purposes. First, we calculate the willingness to pay for top level as opposed to average skills by skill type. The underlying mechanism for this relation is that employers are willing to pay for higher levels of skills because these skills increase the worker's productivity.

Table 4.5

The price of top 25% versus average skills level

Skill	Difference average versus top 25%	
	(rescaled) part-worths	% of average salary
Professional expertise	18.9	17.3
Interpersonal skills	14.1	12.9
Commercial/entrepreneurial skills	8.9	7.4
Innovative/creative skills	15.3	14.0
Strategic/organizational skills	13.8	12.7
General academic skills	12.2	11.2

Note: Calculations done using 10.9 points as the equivalent of 10% of average salary.

Top level professional skills are clearly the ones employers are willing to reward most (some 17%), followed by innovative/creative skills (some 14%). Top level interpersonal

18. The drop in utility associated with asking 10% and 25% more than average is approximately linear, but not quite. A 10% salary increase using the 10% above average salary (rescaled) part-worth is associated with a drop of 9.5 points. However, a 10% salary increase using the 25% above average salary (rescaled) part-worth is associated with a drop of 12.3 points ($10 \times 30.8/25$). For the calculations, we use the average of these two results, namely of 10.9 points.

skills, strategic/organizational skills as well as general academic skills are worth between 11 and 13% of the average junior position salary. Top level commercial/entrepreneurial skills generate the lowest returns (some 7%).

In addition to looking at the price of top skill levels, it is also interesting to attach a price to below average skill levels. We present this price as a negative percentage of the average salary for a junior position as an expression of the costs employers associated with investing in graduates to bring them to the desired average level.

Table 4.6

The costs of bottom 25% versus average skills level

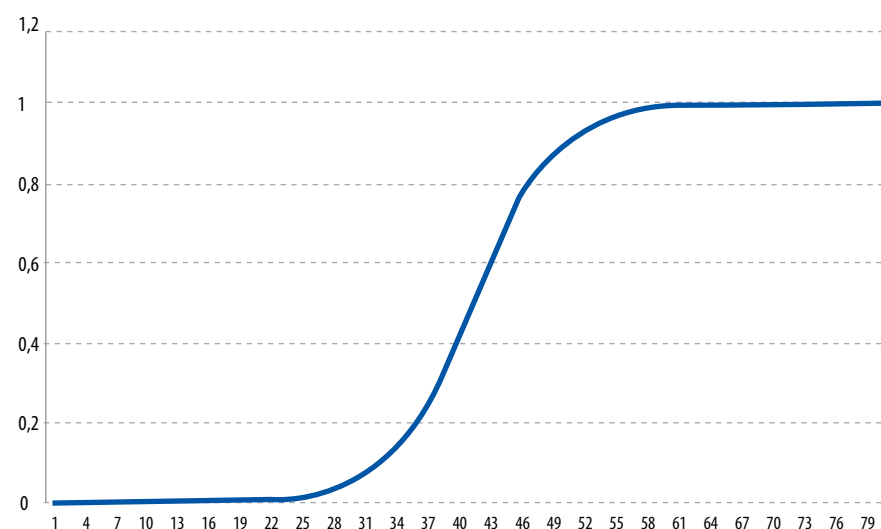
Skill	Difference average versus bottom 25%	
	(rescaled) part-worths	% of average salary
Professional expertise	-32.4	-29.7
Interpersonal skills	-38.1	-35.0
Commercial/entrepreneurial skills	-32.0	-29.4
Innovative/creative skills	-28.7	-26.3
Strategic/organizational skills	-26.3	-24.1
General academic skills	-23.1	-21.2

Note: Calculations done using 10.9 points as the equivalent of 10% of average salary.

The first thing to note is that the absolute costs associated with performing below average in these domains is much larger than the absolute benefits associated with above average functioning. In most cases the costs almost double compared to the benefits in absolute terms. Stated differently, salary (as an expression of productivity in the job) is not just a linear function of skills. Graduates who have below average skills pose a serious threat to employers and this cannot be simply compensated by having other graduates who perform above average. This is because productivity in the job follows an S-shape rather than a linear function (Van der Velden, 2011).

Figure 4.15

Relation between productivity and skills



Source: Van der Velden (2011)

Figure 4.15 illustrates this. According to Van der Velden (2011), the relation between productivity P and skills S is a logistic function: a curve with an S-shape. This means that the productivity will be zero for graduates with very low skills and will reach a maximum as a result of restrictions in the job. Furthermore, productivity increases with skills but at a declining rate. Suppose that S_{mean} marks the graduate with average skills and $S - 1sd$ and $S + 1sd$ marks the graduate performing one standard deviation below and above average respectively. The productivity of these three graduates are indicated by points P_1 , P_2 and P_3 . The figure shows clearly that the productivity gain of the graduate performing above average does not compensate the potential losses of the graduate performing below average.

According to these calculations, graduates with bottom level interpersonal skills are most costly for employers. This is in accordance to the discussion in section 4.3 pointing to the importance of interpersonal skills for team productivity and the difficulty of teaching interpersonal skills (other than presentation skills) in courses. A lack of professional expertise, as well as a lack of commercial/entrepreneurial skills are the second and third most costly skill deficits for employers, followed by innovative/creative and strategic/organizational skills. The costs associated with a lack of general academic skills is still considerable, yet almost half of that of a lack of interpersonal skills.

4.5 Can one team member compensate for another team member?

When analysing how some skills can compensate for others it is important not only to look at graduates applying for a job. It may not be necessary (and possible) for the majority of graduates to be a "Jack-of-all-trades" if employers can compensate weaknesses of one team member with strengths of another team member. Having the team perspective in mind, it is therefore interesting to know whether employers prefer to build teams of workers with similar skill profiles or skill profiles which complement each other. This section will therefore explore where employers see room for specialization in teams, and for which skills all team members are required to have a minimum level.

Some room for compensation within the team

A large part of employers are willing to accept certain skill deficits of a candidate, because that specific skill has already been accounted for within the team in which the candidate will be working. This means that, besides compensation of skills within candidates, there can also be compensation for skills between candidates.

"It is nice if you can compile a team consisting of people who complement one another." (7, Finance, Bank, The Netherlands)

"A group that combines all these skills will be able to handle most tasks well. The right mix of generalists and specialists is often the key to success." (3, Engineering, Automotive, Germany)

The advantages of teams of mixed skill profiles

Employers making an explicit choice for teams of mixed skill profiles mention several specific benefits of mixed teams in comparison to teams of similar skill profiles. Learning from each other, (team) development and creativity are typical arguments for teams of mixed skill profiles.

"If all had similar skill profiles then the team would not have space for development. Therefore, the team would go backwards and not forward." (5, ICT, ICT, Greece)

"When you recruit people with very different backgrounds, everyone has their own point of view. It's not always easy to manage but ultimately we make better progress on projects. I prefer that." (1, Media and Communication, Bank, France)

While compiling teams of graduates with different skill profiles promises advantages with regard to creativity, too much diversity may be counterproductive if the team lacks a common basis. Some employers therefore argue in favour of moderate within-team specialization.

"If you have people who all think the same, in the same manner, then you won't create renewal. You must ensure that you have a team with a variety of people, who are not all different, but offer a certain level of diversity." (6, Finance, Bank, The Netherlands)

Professional expertise and interpersonal skills are difficult to compensate within the team

Looking at the skills that, if lacking within a candidate, might be compensated by team members, it is not surprising that a lack of the most important skills (i.e. professional expertise and interpersonal skills) is considered far more difficult (if not impossible) to be compensated by team members than the other skills.

"On professional expertise I choose high for the entire group. They need a foundation to stand on so you do not need to teach them C++." (9, ICT, ICT, Sweden)

"Nothing can compensate for a deficient ability to function in a team. No matter how good someone is professionally. In one way or another, every individual depends on others." (3, Engineering, Automotive, Germany)

"The key to a good team is their ability to work together, their capacity of integrating everyone's skills. That is why they should all have good interpersonal skills." (6, Legal, Electric Utility Company, Spain)

General academic skills are a key element of being a graduate

Even though the relative importance of general academic skills is lowest compared to the others, employers are often not willing to compensate for a candidate with low general academic skills by putting him or her in a team with people with average or top-level general academic skills. General academic skills are, in other words, a key element of being a graduate and employers expect all graduates within a team to have a sufficient level of it.

"You keep it on the background, but everybody must have a minimum average theoretical competence." (7, Engineering, Engineering, Italy)

Some skills are not required for all team members but reasons differ

Innovative/creative skills, strategic/organizational skills and commercial/entrepreneurial skills appear to be the skills that, if lacking within a candidate, can be compensated by team members, for these skills are often mentioned as being only necessary for a few team members. However, the reasons why these skills aren't required at a high level for the entire team, differ.

According to several employers who are willing to compensate within the team, innovative/creative skills aren't necessary for all team members. Even those employers who are less willing to apply team-compensation consider a high level of innovative/creative skills a nice bonus if not yet available within the team. Innovative/creative skills are not required at a high level for the entire team, since it takes only one person with a creative idea to start a discussion within the team. In this sense, creative thinking might also be 'contagious' and one innovative idea can be the driver for brain storming.

"May not need amazing ideas every day. It could be enough if there is one of them every week." (1, Media and communication, Media and communication, Sweden)

Interestingly, employers in countries severely hit by the crisis stated that they would not allow team-compensation for a low level of innovative/creative skills. In these countries, all team members are supposed to have at least an average level of innovative/creative skills. Most interesting about this finding is that several of these employers argue that because of the economic crisis, their company needs to think very differently and come up with creative ideas to survive.

"We have to come up with different ideas, with different strategies. We face hard times, since everything is changing. Consequently, creative thinking is important and all graduates should be average on that because I understand that they need opportunities in order to show their creativity, which they may not have had. For that reason, I expect it to be average." (1, Finance, Financial services, Greece)

As described earlier, both strategic/organizational skills and commercial/entrepreneurial skills are often not expected of junior candidates, since the juniors' tasks often do not require high levels of these skills. Still, it might be useful if some team members have these skills at a relatively higher level, to improve the business value of the team output.

"Strategic – you can see these goals and the strategy in them. Commercial – you also need to see the strategy behind making this much money. You need a strategy to get there. Also good if someone in the group has that to make them drive there." (9, ICT, ICT, Sweden)

It is remarkable that several employers mentioned how they see the longer-term career paths for people with strategic/organizational and/or commercial/entrepreneurial skills. This might imply that team members who have relatively higher levels of these skills, might be facing better long-term employability.

"When someone proves to have good commercial/entrepreneurial skills, that's good information. Later, they can move into the business department, which is fine, because they know the field as well, since they've worked as a construction expert. But this is something I usually find out later, after they've been on the job, not when choosing a candidate." (5, Engineering, Construction, Czech Republic)

Arguments for compiling teams of similar skill profiles

So far, this section has summarized employers' arguments with regard to the advantages of compiling teams of mixed profiles. There are, of course, also good arguments for compiling teams of similar skill profiles. The most common argument brought forward by employers who prefer similar skill profiles is that having similar graduates within a team enhances team cohesion.

"From my experience, I can tell that managers of work groups usually search for exactly the same type of people they already have on their team. They are all similar but, in this way, they can be sure they will perform well and fit in with the team." (2, ICT, ICT, Czech Republic)

"You need similar profiles with the same skills. They must all have a common knowledge base of an equal level so that none of them fall behind." (10, Legal, Telecom, France)

Better within-team learning has already been mentioned as an advantage of teams of mixed profiles, yet some employers argue the opposite:

"It [similar profiles] will make the teaching-learning process easier and efficient." (2, Media and Communication, Media, Greece)

Another strong argument in favour of similar skill profiles within teams is increased substitutability.

"What if one of the specialists decides to leave? I will then have a team lacking one characteristic." (2, Media and Communication, Internet, Italy).

4.6 Conclusion

As expected, employers prefer graduates with higher levels over graduates with lower levels of a particular skill. Skill domains differ, however, with regard to their overall importance for the hiring decision. Moreover, they differ with regard to the extent to which being among the top 25% is rewarded and being in the bottom 25% is punished.

The most important skills are professional expertise and interpersonal skills. Both the conjoint study as well as the in-depth interviews suggest that a lack of professional expertise and interpersonal skills is difficult, if not impossible, to compensate as most employers require all team members to have at least average levels of these skills. Graduates belonging to the bottom 25% of their group with regard to these skills therefore have only outside chances of getting the job. The analysis also reveals that employers prefer to hire graduates who have average professional skills and average interpersonal skills, instead of graduates who belong to the top 25% in one skill domain and to the bottom 25% in the other.

While there are some employers who prefer team members to have similar skill profiles for reasons of team cohesion and worker substitutability, many employers see possibilities for within team specialization with regard to innovative/creative skills, strategic/organizational skills and commercial/entrepreneurial skills. These skill domains lend themselves for specialization because not everybody needs to possess them to a high extent as long as some members in the team have them. Possibilities for specialization within teams depend on the job tasks of the team the candidate will be working in and the willingness of the specific employer to apply within-team compensation. Innovative/creative skills, strategic/organizational skills and commercial/entrepreneurial skills are often considered less crucial for performing the tasks associated with junior positions, yet important for graduates' career prospects.

General academic skills do not usually tip the balance in favour of one or the other candidate. Most importantly, they usually cannot compensate for a lack of professional expertise. Most employers assume that HE graduates possess these skills at a minimum standard.

International orientation is a tipping factor rather than a make or break in the hiring process according to the in-depth interviews. Nevertheless, for some, mainly internationally operating employers, a sufficient level of international orientation is a prerequisite for getting the job.

Finally, the analyses show that the costs associated with below average functioning are much higher than the benefits associated with above average functioning. Employers can therefore not easily compensate below average functioning, neither by offering a lower wage nor by having other employees in the team that have above average skills. This applies foremost for the interpersonal skills, where below average functioning can be really detrimental and the costs associated with below average functioning almost triple the potential benefits of above average functioning (costs: 35% of average salary; benefits: 13% of average salary). But also in the case of the other skill areas, costs associated with below average functioning are substantial (varying from 21% of average salary for general academic skills to 30% of average salary for professional expertise) and in general double the potential benefits of performing above average in these areas.



5 The role of HE, the stakeholders' view

5.1 Introduction

Based on the results of the literature review and the in-depth interviews, we selected three major dilemmas HEIs face when it comes to ensuring graduate employability:

- The importance and role of specific knowledge in developing graduates' skills;
- The need to strike a balance between developing skills that improve short-term employability and skills that improve long-term employability; and
- The question which skills should be developed inside HE and which skills can better be developed outside HE?

These issues are explained in further detail later in this chapter. In each country, all three issues were discussed by employers (HR managers) and experts on education and education policy (representatives from HEIs, ministries of education, and intermediary organizations such as quality assurance agencies, associations of HEIs, research institutes, employers' associations or career consultants). This chapter summarizes the general outcomes of these focus groups.

Before we go into the more detailed results of the group discussions, we want to make some general reflections. First of all, the participating stakeholders seem to be very interested to discuss the topic of graduate employability and appear truly motivated and committed to find possible ways to improve it. Secondly, it appears that in several countries participating employers and educational experts were not used to talking to each other (about these topics). Nevertheless, several of them indicate that they valued the discussion a lot and that it made them appreciate the need to cooperate together.

"Thanks to this research, we've had one of few opportunities to have a round-table discussion. That we have similar opinions has emerged – that's hopeful for the future."
(3, Intermediary organization, Czech Republic).

These reflections are important to mention beforehand, because these positive group processes indicate the presence of open environments in which participants could feel stimulated to brainstorm together. This in turn indicates that the results presented here are likely to be as valid and exhaustive as possible.

Below, each topic will be shortly introduced after which the general findings of the discussions will be presented. Note that since the goal of the focus groups was to gather insight into the stakeholders' view rather than to reach consensus, quotes from respondents from the same country or focus group can contradict each other. The references for the quotes are the same as for the in-depth interviews, except that here is also mentioned whether the respective respondent is an HR manager or an educational expert. For the latter, the field of expertise is also mentioned.

The remainder of this chapter is organized as follows. Each section (section 5.2 till 5.4) discusses one of the above-mentioned dilemmas. At the end of each section we will specifically address the role of HE. Section 5.5 concludes with a brief summary of the main findings.

5.2 The role of specific knowledge

In today's fast-changing world, many people think that specific knowledge is not so important anymore. Technological developments are so fast that specific knowledge becomes outdated very quickly: the new specific knowledge of today will probably be old-fashioned and outdated in a few years. Moreover, many people argue that most of the specific knowledge can nowadays easily be accessed through the internet. It is therefore more important to teach students the information gathering skills that are needed to find this specific knowledge. And instead of focusing on specific fields of knowledge, study programmes in HE should focus on broad academic skills like analytical thinking, critical thinking and reflectiveness.

On the other hand there are people who argue that general academic skills alone have no practical utility, and that employers will always need content-specific experts to solve expert tasks. In order to become an expert in any field, you need the content-specific knowledge that is needed to solve complex problems. And you need a thorough basis of specific knowledge to be able to evaluate and apply new specific knowledge. Graduates who lack this kind of basis will not be able to find and apply the specific knowledge on the internet to solve these complex expert tasks. Moreover, some psychologists argue that general academic skills cannot be developed in isolation. You need context to develop general skills like analytical thinking or diagnostic skills. It is hard to conceive of a course 'analytical thinking' without specifying what is being analysed.

The focus groups addressed this dilemma by discussing the following topics: How important is discipline- or field-specific knowledge in the curriculum of HE? Is it important for the employability of graduates? Is it important to develop general academic skills?

Some participants in the focus groups seem to share the first perspective. In the words of a German employer:

"I no longer necessarily need to know how something works. I only need to know where I can find it out." (7, ICT, Energy industry, Germany)

However the overall view in the focus groups is that field-specific knowledge and general academic skills can never be developed separately. The stakeholders consider it practically impossible to acquire general academic skills without applying it to a specific context, and vice versa: to acquire field-specific knowledge without at the same time automatically accumulating general academic skills. Therefore, HE should produce both types of skills.

"They have to come already knowing the general knowledge as well as the more specific knowledge... a balance, or rather, combination." (2, HR manager: Media and Communication, Hotels, Spain)

"[...] It is only when I have something tangible to work with that I can learn." (5, Expert: HEI, Sweden).

"The basics are needed in order to understand specialist knowledge in context." (8, Expert: Intermediary organization, The Netherlands).

"I do not think that a general education exists. Whatever I study, even the broadest subject ends to be on a specific topic." (2, HR manager: Engineering, Industry, Italy)

"A professional context is needed because diversified thinking cannot be developed without starting points." (3, HR manager: Finance, Bank, Hungary)

"Acquiring basic knowledge, even in French, is always done through specific apprenticeships, which are essential for structuring general knowledge. It is necessary to look deeper into a particular subject or field in order to discover others." (5, Expert: HEI, France)

This also translates to the employability of graduates. Even employers who stated that, when given the option, they would always choose a specialist (or a generalist), agreed that in the end, they wouldn't hire someone who doesn't also have a certain level of general academic skills (or specific knowledge). The reason for this is that both skills are necessary to work efficiently and make progress. Just like the findings of the in-depth interviews with employers, the overall idea of the stakeholders seems to be that field-specific knowledge might help graduates to better understand what is expected of them in their job, but they will never become an expert if they do not learn on the job, and for that they need general academic skills. Note that this seems to imply that a certain basis of specific knowledge should be taught in HE, but that it will mostly be acquired during working life.

"This skill [general academic skills] shows how much potential the new recruit has, so they would not get stuck at the level they are when they are graduate." (2, HR manager: ICT, Bank, Hungary)

"A graduate should not start from scratch in the workplace, he should have an early preparation in the course of academic study. At work he should strengthen, update, expand his knowledge." (1, HR manager: Policy, public administration, Poland)

"The student of today will have to relearn several times during their professional life – it is a good thing to have a broad knowledge base." (4, Expert: Intermediary organization, Sweden)

The Swedish focusgroup-report provides another argument for focusing on professional skills. The stakeholders there argued that it is no longer enough to have general academic skills since more and more people have them. Instead employers are increasingly looking for specific work related skills. In their view – and in line with the results of the conjoint study – professional expertise and interpersonal skills are becoming increasingly important to actually get hired.

In some focus groups, participants saw a link between the company size and the required level of specialization and general academic skills. It is however not clear which way this relationship goes. In some focus groups, the idea was that larger companies can afford to hire graduates with more general profiles, because they have their own training programmes to teach them the specific knowledge. In other focus groups, however, the idea was that smaller companies are the ones that need generalists, because there graduates would have to do several different tasks, for which in a larger company, several different (specialized) graduates would be hired. This is consistent with the fact

that no major differences were found in the conjoint study regarding the importance of professional expertise or general academic skills with firm size.

The participants in the focus groups also indicated that field-specific knowledge is relatively more important in the fields of medicine, law and Science, technology engineering and math (STEM), and relatively less important in the fields of humanities, arts, media/communication and social sciences. In these fields, general and transferable skills (not only general academic skills but also interpersonal skills, innovative/creative skills, communication skills, flexibility) are considered relatively more important.

"We cannot give just one answer because it depends on the field of studies. There are fields where specific knowledge is a primary need i.e. ICT, Engineering etc...and other fields where specific knowledge is not of such an importance i.e. in media, marketing etc... (4, Expert: Intermediary organization, Greece).

"However, in the case of such non-technical subjects what is much more important is to develop soft skills, universal ones just to develop them in practice, but also to move freely in the job market using soft skills, such as teamwork, critical thinking, loyalty, the ability to adapt. Many of these things you learn in college." (6, Expert: Intermediary organization, Poland)

"In a situation where we have a specialist faculties or the ones preparing for a specific occupation, requiring specific qualifications, i.e. an architect or a lawyer, you know that this expertise is more important than the soft skills." (6, Expert: Intermediary organization, Poland).

Although there seems to be a general view that professional expertise is more important in occupational fields like medicine, law and STEM, the results of this study do not support this. Admittedly, in some focus groups, stakeholders mentioned certification issues, meaning that in medicine and law employees actually have legal obligations to be very specialized. However this does not hold for all STEM professions. Moreover, as we saw in the previous chapter, the conjoint study and in-depth interviews do not support the view that specific knowledge is relatively more important in the occupational fields of law, electrotechnology/engineering, ICT or R&D, or that general academic skills are less important in these occupational fields.

The role of HE

Overall, stakeholders seem to agree that the preferred learning method for acquiring both field-specific knowledge and general academic skills in HE at the same time, is to provide students with theoretical knowledge, which should then be applied in practice. The proposed ideas on how this can be done all involve providing actual or simulated case studies, either through internships or through project based teamwork. The underlying idea is that these teaching methods will simultaneously develop professional expertise as well as general academic skills or other skills like interpersonal skills, innovative/creative skills and flexibility.

"It is not only the matter of including different subjects... it is the question how different subjects are taught, it has to be integrated, you do different exercises or tasks in different ways." (6, Expert: Ministry, Estonia)

"Students must be placed in more practical situations, that creates a shift; they are no longer grasping things in the same way [...] We have created mini companies in our university; with a project where students must manufacture a product, provide a service, look for funding, and sell it. So it's creating a company in every sense of the word; and for our students who got stuck in, it has been fantastic." (5, Expert: HEI, France)

"They use some teaching methods that we feel other schools are deficient in: students participate in projects, they have to do research, make presentations, and assess each other. They are doing a very good job there." (2, HR manager: ICT, Bank, Hungary)

Stakeholders are critical as to the extent to which these new learning methods are actually used in HE and feel that this should be developed more.

"We feed the students with knowledge, without giving them room to try out and to apply this knowledge. It is only a matter of accumulating as many credit points as possible in as brief a time as possible." (5, Expert: HEI, Germany)

"Lecturers are often theorists. Few of them are practitioner. Those who practice rather do not teach at the university." (4, HR manager: Legal, Law firm, Poland)

"I am considering the gap between employers and HE. Abroad there is an incorporation of business in education and students can get a better sense of what professional life is like. In some courses there are several lecturers from businesses." (2, HR manager: Legal, Legal services, Sweden)

"This is ideal and we are moving towards that... at the moment lecturers are lacking the teaching skills, we need to make them more modern, more dynamic... so that the student is not only sitting and listening and going to take the multiple choice test, but that he is doing presentations, takes the floor, does projects, works in teams." (7, Expert: HEI, Estonia).

"As I know from research we conduct, compared to students from Western Europe, Czech students have a stronger feeling that their university studies did not have enough connection with practice." (6, Expert: Intermediary organization, Czech Republic)

Participants state that in order to introduce the teaching method of applying theoretical knowledge into practice, a larger involvement of companies in the study programmes is required, either by providing real case studies, giving (guest) lectures, accepting interns or even by helping design courses.

"First, one of the key solutions is to include practitioners in the education process. It's not just about the lectures, but also about creating study programmes, about the evaluation of these programmes. It is the involvement in the whole education process." (6, Expert: Intermediary organization, Poland)

"This can't be done through reforming education; it is necessary to liaise with companies, allow for mutual information, a better understanding of the training programmes." (7, Expert: HEI, France)

5.3 Short-term or long-term employability?

The content of this topic is closely related to the previous one. Yet, instead of focusing on the role of specific knowledge in the development of academic skills and for graduates' employability, we now want to focus on what the level of specialization of the study programme means for their short-term and long-term employability.

One goal of HE is to support students in acquiring the skills that help them make a good start on the labour market. This means that graduates should have acquired some skills that can instantly be deployed on the labour market. Graduates of very broad study programmes are less equipped with these kind of skills than graduates of study programmes that are specifically geared towards such specific occupations. In the short-term, employers will therefore prefer to hire graduates of the more specialized study programmes. This would mean that the more specialized the study programme is (i.e. the more narrow the professional skills), the better the short-term employability of graduates will be.

On the other hand, HE also needs to equip graduates with the skills that make them employable in the long run and ensure a good career. Here, the idea is that graduates of the broader study programmes know more about a range of different topics, while the graduates of the specialized study programmes know a lot about only a few topics. This would mean that the graduates of the broader study programmes can more easily switch between different positions (or even occupational fields) if the labour market situation requires them to do so. Graduates of the specialized study programmes are less flexible. In other words: the broader the study programme is (i.e. the broader the professional skills), the better the long-term employability of graduates will be.

Faced with these two goals – providing an entry ticket to the labour market and ensuring long-term employability – HEIs need to strike a balance between broad professional skills and more narrow professional skills. The focus groups addressed this dilemma by discussing the following topics: What should HE study programmes look like, to ensure both short-term and long-term employability of graduates? What should be the level of specialization?

In general, the idea within the focus groups seems to be that short-term employability is indeed enhanced by a certain level of specialization within the HE study programme.

"The more specific, the more employable. That's what the market's demanding." (3, HR manager: Legal, Electric Utility Company, Spain).

"In practice, we see that specific knowledge is what opens the door for graduates to get their first job." (1, HR manager: ICT, Enterprise software, Spain).

When talking about long-term employability, stakeholders seem to consider the flexibility of the candidates, their motivation, and their ability to continuously develop themselves through *life-long learning* far more important than whether or not the graduate has completed a relatively broader study programme.

"All employees have to keep life-long learning in mind these days. They should have mobility. Gone are the days when you got a job that was written on your degree." (5, Expert: HEI, Hungary)

"We already take it into account that we train them also when they come to our firm, offer additional trainings." (1, HR manager: Legal, Law firm, Estonia).

These long-term employability-enhancing characteristics or skills could also translate to the short-term employability. Several participants state that, even though specialization might serve as a foot in the door to be invited for a job interview, it is not the level of specialization that is decisive in the hiring process. In the end, the motivated graduates with growth potential are the ones that have the highest chance of getting hired.

"Employers are often looking for potential because once you are in the job they are training you." (6, Expert: HEI, United Kingdom)

"Upon entering the workplace today, a person needs to have the potential to do several different types of work later on, rather than knowing just one thing." (3, HR manager: Finance, Bank, Hungary)

The following quote illustrates that there is no real contradiction between short-term and long-term employability:

"[...] For me, the best method when I'm looking for someone based on his/her potential, ability to adapt and commitment, is to tell myself that long-term employability is what encourages short-term employability, that, in fact, 'later' is more 'now'." (2, HR manager: Finance, Bank, France).

The role of HE

What does this mean for the design of HE study programmes? At a micro level, the overall stakeholders' view seems to be that HE should offer both the specialized knowledge that allow graduates to get the foot in the door, as well as the general basis to enhance their life-long learning abilities. In this sense, the described role of HE is closely related to what has been described in the previous topic.

"The programmes must be balanced in terms of combining general and specific knowledge." (3, HR manager: Legal, Electric Utility Company, Spain).

"Specialization may be a good first step, but there needs to be a balance in order to allow knowledge to grow." (2, HR manager: Legal, Legal services, Sweden)

Although a certain level of specialization is a good way to develop professional expertise, HE programmes should not be too narrow focused. Several participants in the focus groups complained that many master programmes are in fact too specialized. Although stakeholders agree that the bachelor-master system, with the more general bachelors and rather specialized masters, is best to develop both the short-term and the long-term employability-enhancing skills, there is a caveat. In some countries the massification of master's degrees has led to an unnecessary specialization at the master level. This needs to be balanced again in order to ensure the long-term employability of graduates.

The overall view is that short-term and long-term employability are not contradictory goals. Some participants explain this by pointing out that the long-term employability-enhancing characteristics (motivation, life-long learning abilities) are typically developed during working life. They state that with increasing work experience, the actual final degree becomes less important and that the accumulated knowledge during work

becomes decisive. These results are again similar to the findings in the previous chapter, where we saw that work experience can compensate for a less related field of study, or for a lower degree (bachelor's degree instead of master's degree).

"People who have worked on their employability have done this through the experience they've acquired in their jobs [...] and by changing jobs. Meaning they've increased their employability independently of their education." (1, HR manager: ICT, Enterprise software, Spain)

"In the short or long run it doesn't make much of a difference whether you are a specialist or a generalist; it's one's employment that makes the difference." (7, Expert: Ministry, The Netherlands)

"Someone who has been in business for 3 years needs evidence other than a good master's degree. What is more important is the experience he or she has gained in this period, how much someone has developed, how much responsibility he has borne. That is all more important than the final grade." (6, Expert: Intermediary organization, Germany)

5.4 Skill development inside or outside HE?

The world is complex and the labour market sets high demands on the kind of skills that graduates need to possess. This puts a lot of pressure on HEIs to teach these skills to students. However, time in education is by definition limited and this means that HEIs are confronted with choices to be made. They have to decide which skills should be developed in HE and which skills not. Not every skill can easily be developed in HE. There are several issues underlying the decision whether a skill should be developed in HE or not:

- *Timing*: some skills can better be developed earlier or later in life. For example, certain language skills are best developed at a young age (i.e. before HE), while other skills are best developed during HE, or after HE during the working life.
- *HE effectiveness*: some skills should typically be developed in an educational environment, while others are more easily or even better developed in a different environment, e.g. in sports or other activities.
- *Trade-off*: sometimes certain different skills can easily be developed together, but sometimes not. In that case spending more time on one skill will be at the expense of spending time on another skill.
- *Prerequisite for other skills*: some skills may not be needed in themselves, but they may serve as a prerequisite for the development of other skills that are needed. In that case such foundation skills need to be developed first.

The focus groups addressed these issues by discussing the following topics: Which skills should be developed in HE, and which skills should be developed outside HE?

Skills that should mainly be developed in HE

Professional expertise and general academic skills

In nearly all focus groups, the stakeholders agreed that professional expertise and general academic skills should be developed in HE. The idea is that developing these

two skills should be the main focus or goal of HE. This is of course closely related to the previous topics.

"The functional role of HE is to develop professional expertise and general academic skills; this is the primary objective." (4, Expert: Ministry, Hungary)

"Expert knowledge is essential. This is the reason you study." (1, HR manager: Engineering, Automotive, Germany)

This does not necessarily mean, however, that professional expertise and general academic skills cannot also be developed before and/or after HE. This is especially the case for general academic skills. Several stakeholders indicate that general academic skills can (or should) already be developed in primary or secondary education, or that it can also relatively easily be developed outside the scope of educational institutions.

"This [developing general academic skills] is not only the matter of HE... in an ideal situation it should start from kindergarten and the role of HE is to develop it even further and on higher levels." (7, Expert: HEI: intermediary organization, Estonia)

"These [general academic skills, innovative/creative skills, interpersonal skills, international orientation] are skills that you should have before going to university." (5, Expert: Ministry, Spain)

In the case of professional expertise, the general opinion that it should be taught in HE might be related to the idea that one cannot be born with a natural talent for it, as can be the case for interpersonal skills or innovative/creative skills. Professional knowledge seems to be something that typically has to be taught. It is therefore not surprising that none of the stakeholders claimed that this skill can or should already be taught in primary or secondary education. Professional expertise also appears to be a skill that can typically be developed further after HE. This too has already been discussed in the previous topics and is in line with the view that expertise development takes some 5-10 years after leaving education (see appendix 1).

"It [professional expertise] should be taught up to a certain point. You cannot expect to get top experts straight from schools. University gives a foundation upon which a company can develop additional skills and knowledge." (6, Expert: Ministry, Estonia)

Interpersonal skills

Although participants agree that interpersonal skills can be developed in many ways and at many stages in life, most of them claim that it should also be developed in HE. The complaint that the current HE system does not focus enough on the development of this particular skill is often heard.

"We're not the best when it comes to this [interpersonal skills]. It's not developed enough, and it's essential to develop it, and I think that it should be the role of HE." (7, Expert: HEI, France)

"It would be great if their social skills were already well-developed when graduating. Open-minded. Able to see things beyond themselves." (2, HR manager: ICT, Bank, Hungary)

"HE can definitely help in this area [interpersonal skills]... Often it is the matter of teaching methods. We don't have separate courses for social skills, but it can be combined with any subject. It is the question of how lecturers teach." (7, Expert: HEI, Estonia)

"I think it is easy, just make students work together frequently. It works." (6, Expert: HEI, Greece)

Other stakeholders claim that interpersonal skills are something someone is born with, and can therefore not be taught at all. They think that at most, an already existing level of interpersonal skills can be stimulated, but it can never be 'created'.

"This cannot be taught, we can support it and help to bring it out in a person." (7, Expert: HEI, Estonia)

"You do not get interpersonal skills at school, it is the life that teaches them to you, it is part of building your personal character." (2, HR manager: Engineering, Industry, Italy)

"Like creativity, interpersonal skills can only be learnt to a limited extent, in my opinion." (1, HR manager: Engineering, Automotive, Germany)

Some stakeholders indicate that the development of interpersonal skills should not come at the expense of professional expertise and that universities should keep a focus on providing professional expertise on the same high level as now.

"What worries me a bit is professional skills of graduates – our top universities should not give in in that department ... nowadays we have all those opportunities that help to develop social skills ... universities teach the accountants to be social people as well, but in that case this job will not be a challenge for them, it will not be attractive. We continuously face difficulties finding analysts if their social skills are over developed." (1, HR Manager: Finance, Infrastructure, Estonia)

International orientation

The opinion within most focus groups is that international orientation is hard to teach, but that it can be stimulated. This stimulation could be done as early as in primary or secondary education, but should also be continued in HE. Typical suggestions to stimulate students to develop their international orientation, are student exchange programmes and courses that are given in English.

"Pre-school is becoming more like school... can be everything from mixed groups in segregated areas to songs in different languages." (8, Expert: Intermediary organization, Sweden)

"The Erasmus programme should be made almost compulsory, as early as in secondary school." (4, Expert: Ministry, Hungary)

"Foreign lectures, foreign students, team work with foreign students – this helps develop those skills [international orientation]." (7, Expert: HEI, Estonia)

"Universities have made an effort to try to share experiences with other European students, encouraging students to live abroad [...] that opened our eyes, made people

move around more and be more global.” (2, HR manager: Media and communication, Hotels, Spain)

Skills that should mainly be developed in working life

Strategic/organizational skills

The overall view seems to be that HE could develop a small basis for strategic/organizational skills, but that they should mainly be developed during working life. The common reason given for this, is that HE is not the most effective developer of these skills since it should be acquired through practice.

“In my view these skills are too abstract to be learnt in an educational course.” (6, Expert: Intermediary organization, The Netherlands)

“I would say that this [strategic/organizational skills] is learning by doing, it comes with an experience.” (6, Expert: Ministry, Estonia)

“It’s about the connection with real activities, which means something like working in academic research or practicing in some company.” (5, Expert: Intermediary organization, Czech Republic)

“Obviously acquiring such skills can be encouraged, but I think that this falls outside the scope of education.” (3, HR manager: ICT, Public Administration, The Netherlands)

“A certain foundation can be laid [in HE] in order to understand the terminology and such. But the rest is the school life or whatever you want to call it.” (3, HR manager: Finance, Financial services, Sweden)

“However, HE can provide basic knowledge on the method, while, in the workplace, it’s up to them to apply the method.” (3, HR manager: R&D, Pharmaceutical industry, France)

This is of course also related to the general view that strategic/organizational skills are not necessary to perform junior’s tasks within a company, as has been discussed in previous chapters.

Skills that should be developed throughout life

Commercial/entrepreneurial skills and Innovative/creative skills

The focus groups clearly agreed that commercial/entrepreneurial skills and innovative/creative skills are important. The Swedish focusgroup-report also gave an interesting argument that these skills are more in demand in a world that is changing rapidly. There is an increasing need to understand how the world is changing and to develop ideas to meet those changes. In order to respond to these changes graduates need to possess one or more skills in the following domains: innovative/creative, strategic/organizational and commercial/entrepreneurial skills. This puts the discussion in Appendix 1 in a bit different perspective. Where flexibility can be regarded as a more passive skill graduates need to have in order to face increasing uncertainty, these other skills (innovative/creative, strategic/organizational and commercial/entrepreneurial) are more active skills to deal with uncertainty.

"Yes, I would say that it has gone towards those three skills: innovative, strategic and commercial skills. It is considerably more important today than before. Changes happen much faster today. The business community, society in general, changes faster than it did before. It means that the conditions for what we are working with -service and how customer market looks like and how we act- change much more frequently than it ever did." (6, HR manager: Finance, Financial services, Sweden)

Compared to the other skills, stakeholders most often considered innovative/creative skills and commercial/entrepreneurial skills as innate and therefore very difficult to teach. These are skills that are most often seen as something one develops throughout life, but in some focus groups, stakeholders even state that it cannot be taught at all.

"You cannot learn commercial competences: there are people that simply have no propensity to risk, there are people that are very good at executing orders and that are not able to develop any entrepreneurial skills. There is no course that can teach you these things. If you do not feel suited to be an entrepreneur, you cannot do it!" (3 Expert: Intermediary organization, Italy)

"I believe entrepreneur is a personality. Our company is owned and run by an entrepreneur and I don't think that is something you can learn how to be. It is some kind of a personality disorder from the beginning. If you need to be educated to be an entrepreneur, then you probably do not have the talent for it." (3, HR manager: Finance, Financial services, Sweden)

"This [commercial/entrepreneurial skills] definitely goes beyond the expectations by which we judge career entrants. That does not mean that appropriate abilities are not worthwhile, but this cannot be a function of the tertiary institutions." (8, Expert: HEI, Germany)

"If there is nothing there [innovative/creative skills], there is nothing to encourage." (2, HR manager: Media and Communication, PR and media strategy, Germany)

Even though these two skills might be difficult to teach if not yet already there at some level, HE could pay attention to stimulating the development of both skills. But in that case HE is not the only institution responsible for providing this stimulation. Overall stakeholders seem to consider that the responsibility for the development of both skills should be more or less shared between both the entire educational system (i.e. primary, secondary and tertiary education) and employers.

"It [innovative/creative skills] can be developed. The difference is whether it is easy or difficult to develop." (3, HR manager: Finance, Bank, Hungary)

"I see it [innovative/creative skills] as something you can develop at a later stage of your career, you do not really need it at the beginning." (HR manager: Engineering Energy, Industry, Italy)

"You can't ask universities to be a one-man band; companies have to provide training in commercial skills." (9, Expert: Intermediary organization, Spain)

"Some people are born with good entrepreneurial instinct, but those who aren't need to be taught." (5, Expert: Intermediary organization, Estonia)

5.5 Conclusions

This chapter investigated what the role of HE could and should be in ensuring the employability of HE graduates. We discussed three dilemmas HEIs are facing:

- The importance and role of specific knowledge in developing graduates' skills;
- The need to strike a balance between developing skills that improve short-term employability and skills that improve long-term employability; and
- The question which skills should be developed inside HE and which skills can better be developed outside HE?

With respect to the first topic, two perspectives were sketched. One in which the primary focus of HE should be to produce generalists because the world changes so fast that specific knowledge is soon rendered obsolete. And the other perspective in which HE should focus on developing professional knowledge because this provides the basis for professional expertise. Moreover in this view general academic skills cannot be developed without content.

The overall view in the focus groups is that field-specific knowledge and general academic skills are always highly connected. That is, stakeholders consider it practically impossible to acquire general academic skills without applying it to a specific context, and vice versa: to acquire field-specific knowledge without at the same time automatically accumulating general academic skills. In that sense the opinions clearly converge to the second perspective indicating that specific knowledge is a 'conditio sine qua non' for developing both professional expertise and general academic skills.

Overall, stakeholders seem to agree that the preferred learning method for acquiring both types of skills is to incorporate 'real' work practices in the curriculum, e.g. through actual or simulated case studies. This way students can directly apply theoretical knowledge into practice. In general, stakeholders are quite critical about the extent to which these work practices are already integrated in the curriculum and most argue that there is clear room for improvement. Some also indicate that this could be fostered by involving employers more heavily in the programme, e.g. through internships, guest lectures or direct involvement in the curriculum design.

With respect to the second dilemma (*Should HE focus on short-term employability or long-term employability? And what does this mean for the degree of specialization?*), the participants seem to agree that the two perspectives need not be in conflict. That is, a certain level of specialization might serve as a foot in the door for graduates and thus increase their short-term employability. But this also serves as a basis for the long-term employability. Long-term employability is related to the ability to keep up to date with relevant developments in one's own field or discipline as well as the ability to take up challenges not directly related to one's own field or discipline. Stakeholders indicate that this relates to the growth potential that a graduate needs to have and this is not only relevant in the later career but is decisive at the start of the career as well. Graduates need to have the specialized skills as well as the capacity to develop further on the job. This is not necessarily related to the level of specialization.

Having the specialized skills that are needed to provide an entry ticket to the labour market, does not preclude to have the motivation and ability to continuously develop oneself through *life-long learning*. According to the stakeholders, the combination of developing both specific knowledge and general academic skills will ensure both the

short-term and the long-term employability of HE graduates because it provides a solid basis for life-long learning, which in turn is a basis for becoming a true expert.

However, the complaint within several focus groups was that master programmes at universities are often too specialized. With increasing numbers of students getting their master's degree, this may decrease the transparency on the labour market and can thus be dysfunctional.

Regarding the third dilemma (*Which skills should be developed in HE and which skills should be developed outside HE*), the results of the focus groups can be summarized as follows. It will come as no surprise that in nearly all focus groups the stakeholders agreed that professional expertise and general academic skills should be developed in HE. The idea is that developing these two skills should be the main focus or goal of HE.

Regarding *interpersonal skills*, participants agree that these can be developed in many ways and at many stages in life. However most of them claim that it should also be developed in HE. Many stakeholders indicate that the development of interpersonal skills in HE is considered unsatisfactory. Although some worries were expressed that developing interpersonal skills should not be done at the expense of developing professional expertise, most stakeholders agree that applying new teaching methods, such as project based teamwork, should enable students to simultaneously develop their professional expertise, general academic skills, interpersonal skills *and* innovative/creative skills.

Regarding *international orientation*, stakeholders agree that this should have a place in HE as well, although it is not the only way to develop this skill. HE can foster this by creating possibilities for students to go abroad, but also by giving courses in English. It seems that in general HEIs are more or less able to fulfil this role, but that in some countries it can get more emphasis. Current initiatives like the Erasmus programme are well received and should be maintained.

The overall view seems to be that HE could develop a small basis for *strategic/organizational skills*, but that they should mainly be developed during working life. The common reason given for this, is that HE is not the most effective developer of these skills since it should be acquired through practice.

Compared to the other skills, stakeholders most often considered *innovative/creative skills and commercial/entrepreneurial skills* as innate and therefore very difficult to teach. These are skills that are most often seen as something one develops throughout life, but in some focus groups, stakeholders even state that it cannot be taught at all. Even though these two skills might be difficult to teach, HE could pay attention to *stimulating* the development of both skills.

6 Summary and conclusions

6.1 Introduction

Background of the study

In recent decades there has been an increased awareness of human capital as one of the driving forces of economic development. Policy makers have realized the importance of investing in education and training as a way of improving the existing stock of skills. Universities are accorded a special role in this process. The European Commission (2009) has placed universities at the heart of Europe's so-called knowledge triangle of research, education and innovation, which are seen as the key drivers of a knowledge based society.

However there are still major problems in the match between labour market needs and the skills of HE graduates. National and European graduate surveys have already pointed to the attributes and skills which make graduates more employable. The picture of the transition from HE to work these studies draw is, however, likely to be incomplete and – in some respects – biased. Studies gathering information from employers therefore complement graduate surveys by bringing in the perspective of the world of work.

The point of departure of this study was a lack of information on the employers' perspective on what makes graduates valuable for organizations. Further insights into how employers evaluate HE graduates' employability are crucial for designing effective HE policy. A better understanding of employers' skill needs is decisive for finding ways to bridge the gap between the worlds of education and work and to realize a better match between skills supplied by HE and skills demanded by the labour market.

Goal of the study and research questions

This study aims to provide further insight in what employers' needs are and how they evaluate HE graduates' employability. In particular the study aims to provide answers to the following research questions:

1. What are the major trends on the labour market for HE graduates and how do these trends impact the skills that HE graduates are supposed to have?
2. What are the key characteristics that employers look at when they recruit HE graduates? Are these characteristics comparable across countries and across occupational fields?
3. What are the skills that graduates should possess in order to be employable? Are these skills comparable across countries and across occupational areas?
4. How can HEIs best enable students to develop employable profiles? What are the dilemmas that HEIs face when improving employability?

Trends and related skills

When assessing the demand for highly skilled workers, it is important to take account of recent trends in graduates' world of work. Humburg and Van der Velden (2013) supply a framework which enabled us to identify the major trends on the labour market and the implications of these trends for the skills that HE graduates are supposed to have in the 21st century. Following Humburg and Van der Velden, we distinguish six trends which form the basis of the changing role of graduates in economic life. These trends are the *knowledge society*, *increasing uncertainty*, *the ICT revolution*, *high performance workplaces*, *globalization*, and *the change of the economic structure*. By changing the nature and range of tasks graduates are expected to fulfil in today's economy, these trends generate new and intensify traditional skill demands, which can be summarized as *professional expertise*, *flexibility*, *innovation and knowledge management*, *mobilization of human resources*, *international orientation*, and *entrepreneurship*.

Not all of these skills have been assessed in this study. We decided to leave out the domain of 'flexibility' entirely from the current study as the literature review shows that this skill domain is not rewarded as such, but rather serves a function as 'insurance' against changes in the environment. The domain 'professional expertise' was subdivided into occupation-specific skills (here labelled professional expertise) and general academic skills. The domain 'mobilization of human resources' was subdivided into interpersonal skills and strategic/organizational skills. Innovative/creative skills form an important part of the domain 'innovation and knowledge management' which also includes more strategic ICT skills. The latter was not taken up in this study as strategic ICT skills are part of the so-called basic skills (just like literacy skills and numeracy skills) that are supposed to be developed in secondary education already. Entrepreneurial/commercial skills match the domain of 'entrepreneurship'.

The skills that were assessed in the study are defined as follows:

- *Professional expertise*: knowledge and skills needed to solve occupation-specific problems.
- *General academic skills*: analytical thinking, reflectiveness, and the ability to see the limitations of one's own discipline.
- *Innovative/creative skills*: ability to come up with new ideas and to approach problems from a different angle.
- *Strategic/organizational skills*: ability to act strategically towards the achievement of organizational goals and priorities.
- *Interpersonal skills*: ability to work in a team and communicate and cooperate effectively with diverse colleagues and clients.
- *Commercial/entrepreneurial skills*: ability to recognize the commercial value of an idea and to search for and pursue opportunities to turn them into successful products.
- *International orientation*: the proficiency of foreign languages and intercultural skills, that is the ability to work with people from different cultural backgrounds and to adapt to new cultural contexts.

Design of the study

A general weakness of most employer surveys is the lack of forced choice in evaluating different characteristics. If we let employers fill in a wish list, they seem to be looking for a 'Jack-of-all-trades'. In practice, however, these Jacks-of-all-trades hardly exist, and most people have their strong and weak points. It is here that our study makes a significant step forward. By using a conjoint study approach, we forced employers to choose between imperfect graduate profiles and these choices reflect the true significance of particular skills.

To take account of the complexity of the recruitment process and to put the conjoint study in an as realistic as possible context, we simulated a two-step recruitment process. Before starting the conjoint study, employers were told that their task is to look for a recent graduate to fill a typical junior position in their organization. The junior position was defined as a full-time position and structural in the sense that seasonal or short term positions were excluded. We chose not to define the skill level required for the vacancy as this would necessarily have further narrowed down the focus of this study. As a consequence the typical degree required for the junior position respondents had in mind when doing the experiment varies from bachelor's degree to doctorate. This has been taken into account in the interpretation of the results.

Overall, some 900 employers in nine European countries participated in the study. In the first step (the first conjoint study) employers were asked to select candidates for a job interview based on information on the typical characteristics that can be found in a letter of application or CV (like degree, field of study, GPA or relevant work experience). This enabled us to examine what are the key characteristics employers look at when recruiting HE graduates, and whether the weight employers attach to particular characteristics varies across countries and occupational fields.

In the second step, after having completed the selection of candidates for a job interview, employers were asked to select the candidate they would eventually hire. To make an informed choice, employers were provided with a hypothetical report of an assessment centre which evaluated the job applicants' skills in the six skill areas defined earlier. This step (the second conjoint study) informed us about the relative importance of the six skill areas assessed.

The results of the quantitative study were complemented and put into context with the findings of individual in-depth interviews with national and international employers in 12 countries. These interviews replicated the simulation process in the quantitative survey, and enabled us to obtain a better picture of the considerations underlying employers' choice of certain profiles and the ranking of attributes and skills. The interviews also allowed to gather information on the optimal skill mix the pool of graduates within an organization needs to possess.

Finally we conducted focus groups of relevant stakeholders in the same 12 countries. In the focus groups participants discussed what HEIs should and could do to improve graduate employability. More specifically they discussed dilemmas HEIs face when improving employability.

6.2 Findings

The relevance of CV attributes

We already know from graduate surveys which attributes are related to success on the labour market. A major drawback, however, is that these characteristics are usually correlated and it is hard to identify the relative contribution of each characteristic. Moreover, self-selection and unobserved heterogeneity mask the actual relevance of certain attributes, for example if we look at the relevance of having a matching field of study or a specific degree. In the conjoint study we were able to fully control the composition of the hypothetical profiles, ensuring that the correlation between the attributes is zero.

When selecting graduates for job interviews on the basis of CV attributes, employers attach most importance to attributes which signal familiarity with the job task and low training costs: *the match between the field of study and the job task*, as well as *relevant work experience*. Graduates' chances to get invited to a job interview increase substantially with the quality of the field of study-job match and with the amount of relevant work experience. Graduates with fields of study unrelated to the job task only have an outside chance to get invited to the job interview. Having graduated in a field of study not completely matched but related to the job task can be compensated with relevant work experience. Chances of getting invited to a job interview decrease significantly for graduates without relevant work experience.

On a European average, graduates' employability signalled by a *bachelor's degree* and a *master's degree* is similar, yet substantial differences across countries exist. In the Netherlands and Sweden employers on average seem to be almost indifferent about inviting graduates with a bachelor's degree or a master's degree to job interviews. And while in Spain and the United Kingdom employers prefer graduates with a bachelor's degree over graduates with a master's degree when making a selection for invitations to a job interview, in all the other countries, the master's degree is often considered the standard and most common degree, and recruitment strategies seem to reflect this. Graduates not having a master's degree seem to be able to compensate this disadvantage with having an additional year of relevant work experience. *Doctorate degrees* are only attractive for employers who are looking for graduates with specialized knowledge in their field and an elevated theoretical orientation. In the case of junior positions that require less theoretical knowledge, employers prefer a bachelor's or master's degree as they consider this a better match for the jobs they offer.

Grades matter for getting invited to a job interview. Below average grades signal a substantially lower level of employability than average grades. Above average grades increase graduates' chances to get invited to a job interview to a similar extent as does being among the top 10% with regard to GPA. Excellent grades are especially important for graduates who lack work experience. Conversely, work experience can compensate for having below average grades.

The *prestige or reputation* of the university from which graduates obtained their degree also matters, and the impact is comparable to having above average instead of average grades. Employers often use a university's prestige or reputation to validate the meaning of grades.

Employers appreciate having *studied abroad* as a signal of positive personality characteristics such as openness to experience and independence. Yet, they emphasize that this attribute is seen as something that may tip the balance when other things are equal.

Overall, employers cluster *surprisingly little* along the lines of categories which are often used to characterize them. Apart from their evaluation of graduates' degree and time spent studying abroad, employers' preferences do not significantly differ across commonly used segments such as country, occupational field or organization-size. The finding that preferences do not differ much across countries might come as a surprise as some of the results in the graduate surveys suggest for example a weaker link between study field and job tasks in countries like the UK (e.g. Storen and Arnesen, 2011). This may be due to different factors. One is that this study examines preferences and not realised outcomes. Employers may have a preference for graduates with a matching field of study, but this does not mean that these graduates are also available. When the HE system does not 'produce' enough graduates from the 'right' field of study, employers are forced to choose graduates from other fields, thus resulting in a higher proportion of horizontal mismatches. The earlier results from the graduate surveys suggest that the factors driving success on the labour market do not differ that much across the different countries. This implies that differences in outcomes are not so much caused by differences in preferences of graduates or employers, but by differences in supply and demand. Another factor that may play a role is that what constitutes a 'matching' field of study might differ from country to country. In the eyes of a British employer, this may be

broadly defined than in the eyes of a German employer, which would result in a similar ranking, but a different outcome.

The relevance of different skills

As expected, employers prefer graduates with *higher levels of skills* over graduates with lower levels of skills. Skill domains differ, however, with regard to their overall importance for the hiring decision. Moreover, they differ with regard to the extent to which being among the top 25% is rewarded and being in the bottom 25% is punished.

The most important skills are *professional expertise and interpersonal skills*. Both the conjoint study as well as the in-depth interviews suggest that a lack of professional expertise and interpersonal skills is difficult, if not impossible, to compensate. Most employers require all team members to have at least average levels of these skills. Graduates belonging to the bottom 25% of their group with regard to these skills therefore have only outside chances of getting the job. The analysis also reveals that employers prefer to hire graduates who have average professional skills and average interpersonal skills, instead of graduates who belong to the top 25% in one skill domain and to the bottom 25% in the other.

While there are some employers who prefer team members to have similar skill profiles for reasons of team cohesion and worker substitutability, many employers see possibilities for *within-team specialization* with regard to *innovative/creative skills, strategic/organizational skills* and *commercial/entrepreneurial skills*. These skill domains lend themselves for specialization because not everybody needs to possess them to a high extent as long as some members in the team have them. Possibilities for specialization within teams depend on the job tasks in the team the candidate will be working in and the willingness of the specific employer to apply within-team compensation. Innovative/creative skills, strategic/organizational skills and commercial/entrepreneurial skills are often considered less crucial for performing the tasks associated with junior positions, yet important for graduates' career prospects.

General academic skills do not usually tip the balance in favour of one candidate or the other. Most importantly, they usually cannot compensate for a lack of professional expertise. Most employers assume that HE graduates possess these skills at least at an average level.

International orientation is considered important and employers have a preference for graduates who have done at least part of their study abroad. Although it is not a decisive factor, it may tip the balance for a particular candidate when other things are equal. Employers primarily associate having studied abroad with skills like advanced international orientation, language skills and a demonstrated ability and willingness to deal with new situations, to take risks and to be open to new experiences.

Finally, the analyses show that the costs associated with *below average performance* are much higher than the *benefits* associated with *above average performance*. Employers can therefore not easily compensate below average performance, neither by offering a lower wage nor by having other employees in the team that have above average skills. This applies foremost for interpersonal skills, where below average performance can be really detrimental. The costs associated with below average performance in this domain almost triple the potential benefits of above average performance (costs: 35% of average salary; benefits: 13% of average salary). But also in the case of the other skills

domains, costs associated with below average performance are substantial (varying from 21% of average salary for general academic skills to 30% of average salary for professional expertise) and in general double the potential benefits of performing above average in these areas.

Dilemmas HE is facing

In the focus groups we investigated what the role of HE could and should be in ensuring the employability of HE graduates. We discussed three dilemmas HEIs are facing:

1. The importance and role of specific knowledge in developing graduates' skills;
2. The need to strike a balance between developing skills that improve short-term employability and skills that improve long-term employability; and
3. The question which skills should be developed inside HE and which skills can better be developed outside HE?

Re 1: The role of specific knowledge in developing graduates' skills

With respect to the first topic two perspectives were sketched. One in which the primary focus of HE should be to produce generalists because the world changes so fast that specific knowledge is soon rendered obsolete. And the other perspective in which HE should focus on developing professional knowledge because this provides the basis for professional expertise. Moreover in this latter view general academic skills can only be developed within a certain context of a professional discipline.

The overall view in the focus groups is that field-specific knowledge and general academic skills are always highly connected. That is, stakeholders consider it practically impossible to acquire general academic skills without applying it to a specific context. They also consider specific knowledge to be very important to deal with complex professional demands. In that sense the opinions clearly converge to the second perspective indicating that specific knowledge is essential and also a 'conditio sine qua non' for developing both professional expertise and general academic skills.

Overall, stakeholders seem to agree that the preferred learning method for acquiring both types of skills is to incorporate 'real' work practices in the curriculum, e.g. through actual or simulated case studies. This way students can directly apply theoretical knowledge into practice. In general, stakeholders are quite critical about the extent to which these work practices are already integrated in the curriculum and most argue that there is room for improvement. Some also indicate that this could be fostered by involving employers more heavily in the programme, e.g. through internships, guest lectures or direct involvement in the curriculum design.

Re 2: Should HE focus on short-term employability or long-term employability? And what does this mean for the degree of specialization?

With respect to the second topic, the participants seem to agree that the two perspectives need not be in conflict. On the one hand, a certain level of specialization serves as a foot in the door for graduates and thus increases their short-term employability. On the other hand, specialization also serves as a basis for the long-term employability because long-term employability is related to the ability to keep up-to-date with relevant developments in one's own field or discipline. According to the stakeholders, the combination of developing both specific knowledge and general academic skills in HE will therefore ensure both the short-term and the long-term employability of HE graduates.

A common complaint within several focus groups was that master programmes at universities are often too specialized. With increasing numbers of students getting their master's degree, this may decrease the transparency on the labour market and can thus be dysfunctional.

Re 3: Which skills should be developed in HE and which skills should be developed outside HE?

Regarding the *third topic*, the results of the focus groups can be summarized as follows. It will come as no surprise that in nearly all focus groups the stakeholders agreed that professional expertise and general academic skills should be developed in HE. The idea is that developing these two skills should be the main focus or goal of HE.

Regarding *interpersonal skills*, participants agree that these can be developed in many ways and at many stages in life. However most of them claim that it should (also) be developed in HE. Many stakeholders indicate that the development of interpersonal skills in HE is considered unsatisfactory. Although some worries were expressed that developing interpersonal skills should not be done at the expense of developing professional expertise, most stakeholders agree that applying new teaching methods, such as project based teamwork, should enable students to simultaneously develop their professional expertise, general academic skills, interpersonal skills and innovative/creative skills.

Regarding *international orientation*, stakeholders agree that this should have a place in HE as well, although it is not the only way to develop this skill. HE can foster this by creating possibilities for students to go abroad, and by teaching courses in English. It seems that in general HEIs are more or less able to fulfil this role, but that in some countries it can get more emphasis. Current initiatives like the Erasmus programme are well received and should be maintained.

The overall view seems to be that HE could develop a small basis for *strategic/organizational skills*, but that they should mainly be developed during working life. The common reason given for this, is that HE is not the most effective developer of these skills since it should be acquired through practice.

Compared to the other skills, stakeholders most often considered *innovative/creative skills* and *commercial/entrepreneurial skills* as innate and therefore very difficult to teach. These are skills that are most often seen as something one develops throughout life, but in some focus groups, stakeholders even state that it cannot be taught at all. Even though these two skills might be difficult to teach, HE could pay attention to stimulating the development of both skills.

6.3 On the methodology of the study: lessons learned

In this study we used a combination of both quantitative and qualitative methods to answer our research questions. The conjoint analysis was used to mimic the selection and hiring process of employers. There are two important advantages of this method.

First, compared to methods that focus on employers' preferences, it provides a more realistic setting in which employers are forced to choose between different candidates. These choices reveal the underlying preferences of the employers. Methods focusing

on preferences alone may come up with unrealistic wish lists (the 'Jacks-of-all-trades') as there are no constraints in the selection process. We think that the conjoint analysis provides a better way to identify the 'true' preferences.

Second, compared to methods that focus on realised outcomes on the labour market (such as graduate surveys), it provides unbiased estimates of the relative importance of attributes or skills in assessing graduates' employability. The realised outcomes on the labour market are always biased by self-selection or other sources of unobserved heterogeneity. Therefore we are never sure whether for example high grades get graduates into better jobs or that these better jobs are just a result of the fact that people with high grades apply for different kinds of jobs. In the conjoint analysis this is not a problem as the provision of hypothetical candidates is fully controlled by the researcher. The fact that the correlation between the different attributes is zero makes it possible to get good and unbiased estimates of the different characteristics and skills that affect graduate employability.

Nevertheless there might be some drawbacks of this method as well. One issue that might be raised is whether this method indeed provides a realistic setting. After all, the simulation is done with hypothetical candidates and employers might just see this as some game in which they are participating without any real consequences. The experiences in the pilots as well as the in-depth interviews in which we repeated the same simulation, convince us that employers do regard the simulation as realistic and very close to the standard way of recruitment and selection of HE graduates. None of the employers indicated that this was unrealistic and although not many employers make use of an assessment centre to assess the skills of graduates, they all do look at these kind of skills when actually hiring a graduate. Note that we only used the 'reports' of the assessment centre in the second step to give the respondents credible information about the job applicants' skill levels. The employers indeed perceived this as credible.

Another issue is that the results of the conjoint analyses can only give relevant information if the attributes that are selected are relevant for the selection process. If an important attribute is missing, the relevance of this attribute can of course not be taken up. Also there is no comparable estimate like the 'unexplained variance' in analyses on realised outcomes that might hint towards unobserved characteristics that might play a role but are left out. However, the experience in the pilot study and the answers from the in-depth interviews indicate that employers think that these were the relevant CV attributes and skills that they look at, and we have no indication that a specific important attribute or skill was left out.

A third issue is that the results of the analyses are vulnerable to the way the different levels of attributes are described. We saw this for example when looking at the importance of prestige of university. By only distinguishing top-ranked and average ranked universities, the importance of this attribute is lower than if we would also have distinguished a low-ranked university. This is something to keep in mind when comparing the results.

A fourth issue is that the conjoint analyses may show differences in preferences, but do not indicate why this is the case. For example, employers who prefer graduates with a master's degree over graduates with a bachelor's degree may value the formers' higher (expected) level of skills, but may also have a preference for older graduates (master's degree holders are on average older than bachelor's degree holders). The in-depth

interviews, in which employers are asked why they chose certain profiles, therefore play an important role in understanding the reasoning behind employers' preferences.

The combination of conjoint analyses and in-depth interviews has given this study a particularly strong design. The fact that the in-depth interviews started with the same simulation as the conjoint analyses allowed us to get a better interpretation of the findings from the conjoint analysis and to logically extend it to areas not covered by the quantitative survey (such as the role of having a mix of skills in a team rather than selecting one 'ideal' candidate).

6.4 Conclusions and policy implications

Misconceptions on graduate employability

There are a lot of popular beliefs about graduate employability. These beliefs are not only widely held among students and their parents but also among representatives from HE, employers' organizations or policymakers. An important side effect of this study is that we can address some of these views and either substantiate them with empirical facts or unmask them as misconceptions. Let us start with the misconceptions.

"It does not matter what you study, it is the degree that counts."

This is a widespread belief. Especially in countries characterized by internal labour markets, people think that the field of study is not really important for graduate employability. Instead they emphasize that any field of study will develop the kind of general academic skills that are needed to perform well on the labour market. This is certainly not the case. Employability varies largely between fields of study as we already know from previous graduate surveys (Allen and Van der Velden, 2011a). The conjoint analysis in this study also clearly shows that employers look at the field of study as the first signal of graduate employability. So it does matter what you study.

"Employers will always prefer people with the highest degree over people with a lower degree. This leads to a rat race in HE where students have to earn ever higher diplomas in order to stay employable."

We find no indication that higher degrees are always preferred by employers. For many junior positions employers seem to prefer bachelors or masters instead of doctorates, the latter being viewed as too theoretical or specialised for these kind of junior positions. And even master's degrees are not always preferred over bachelor's degrees. The study showed that in some countries like Poland, Germany, France or the Czech Republic employers seem to prefer the master's degree over the bachelor's degree, but in other countries the differences are much smaller or even reversed as in the case of the UK. This seems to be related with country specific differences in exit rates. In the UK for instance, the bachelor's degree is regarded as the 'typical exit' from HE, while in other countries master's degrees are considered to be the 'typical exit'. But even within these countries, some employers prefer bachelor's degrees rather than master's degrees as is indicated by the fact that the preference differences are not very large.

"The world is changing fast and graduates need to be prepared to change occupations multiple times over the career. We therefore need generalists instead of specialists."

The first proposition is by no doubt correct: the world changes fast and the perspective of a lifetime career with a single employer in a single occupation has long gone as has been described in the literature review. But this does not imply that HE needs to produce

generalists. The results from the focus groups indicate that specific knowledge is needed to provide graduates with an entry ticket to the labour market. Also the conjoint analyses indicate the importance of professional expertise for graduate employability and this mimics the findings in previous graduate surveys (REFLEX, HEGESCO). This short-term employability is probably the best predictor of professional development and long-term employability.

"Through Internet graduates no longer need to have specific knowledge; they just need to know where to find it."

This view is closely connected to the previous one because it relates to the fast changing world. The basic idea is that knowledge is no longer an individual characteristic but a social characteristic. Knowledge is shared in communities of practice and on the Internet and an individual's ability to use this knowledge is mainly dependent on his or her network skills and strategic ICT skills. This view underestimates the value of knowledge in the development of expertise. In order to be able to evaluate information found on the Internet or retrieved from others, graduates need a strong knowledge base to start with. This was supported by the experts in the focus groups but can also be grounded in the research on the development of professional expertise (Hayes, 1981; Ericsson and Crutcher, 1990).

"THE employer wants ..."

THE employer does not exist. There are major differences between employers and these do not simply cluster along conventional lines of countries, occupational fields, economic sectors or firm-size as was shown in the conjoint analyses. Heterogeneity is the rule rather than the exception and this results in different views on graduate employability as well as different demands on required skills. Also conventional views on how these demands may differ across different occupational fields, economic sectors, or organization size do not hold. Large organizations do not typically all share the same view on what constitutes graduate's employability nor do SMEs. And the same is true for employers from a particular occupational field or economic sector.

"THE graduate should ..."

And neither should THE graduate exist. The large differences among employers imply that HE should offer the palette to serve the mix of skills that are in demand on the labour market as well as the mix in existing skills in the student population. There is no need to have a 'one-size-fits-all' approach in HE. The labour market needs a mix of skills in the population of graduates as a whole. This calls for differentiation between universities and within universities between different levels and different kind of programmes. Some universities can offer more academic programmes and others more vocational oriented programmes. There is also a clear need for different levels with some employers preferring doctorates and others preferring bachelors or masters and each of these degrees serve a specific segment of the labour market.

"Employers are the ones best informed about relevant developments on the labour market and the future skill needs."

Employers do not have a crystal ball to forecast the future. They find it extremely difficult to make predictions about future trends and to reflect on what this implies for HE programmes. This does not only hold for employers in SMEs but also for employers in the large multinational companies. This is one of the outcomes of the in-depth interviews and the focus groups. One cannot solve this problem by asking many employers how they think skill demands develop. The average of many unreliable answers is not by

definition better than the response from one single employer. This is one of the reasons why we chose to focus on general developments on the labour market and built an analytical framework in the literature review from which we were able to deduct which skills will be relevant in the future.

So what can we conclude?

After reflecting on the misconceptions, we can now concentrate on the major conclusions of the study and what this implies for HE policy.

Underperformance comes at great cost

The study shows that the costs related to underperformance of graduates is much higher than the possible benefits associated with above average performance. Stated differently, productivity is not just a linear function of skills. Below a certain skill level, the productivity of graduates drops sharply and might even become negative when there is a high damage risk (think of a surgeon who lacks the proper surgery skills or a banker who lacks proper financial and ethical skills). The reverse applies to above average performance. There are diminishing returns to having higher levels of skills because the job sets certain limitations to the productivity. The study shows that graduates who belong to the top 25% of their group have some 10 to 15% higher productivity compared to the average graduate. But the graduates who belong to the bottom 25% of their group have a 20 to 30% lower productivity than the average graduate.

Employers cannot pool the risks of variation in skills levels

The fact that productivity is not just a linear function of skills also implies that employers cannot simply pool the risks associated with variation in skills among graduates. Stated differently, underperformance in one domain cannot be compensated by above average performance in another domain. Nor can employers pool the risks by employing multiple graduates, since the underperformance of one graduate must be compensated by the above average performance of at least two other graduates to balance the costs (for most skills, costs associated with below average performance doubles the benefits associated with above average performance). The result is that employers prefer graduates who perform average in relevant skill domains rather than having a graduate who belongs to the top 25% in one domain and the bottom 25% in another domain.

The risk of underperformance underlines the importance of good signals on graduates' skills

Understanding the high costs related to underperformance makes clear why employers find good signals about graduate's employability so important. Relevant signals are the match between the field of study and the job tasks, the extent to which a graduate has relevant work experience, the GPA or the prestige of the university. Having a HE degree also signals for most employers that HE graduates have the general academic skills they need. All these signals help employers to minimize the risk that they will hire a graduate who lacks the proper skills. The signals are typically used in combination as employers have indicated in the in-depth interviews. If somebody lacks relevant work experience, employers will look more strongly at the level of the degree or at the GPA. If somebody comes from a prestigious university, GPA is less important than if someone comes from a university of average prestige.

Never underestimate the relevance of specific knowledge

The results of the conjoint analyses clearly show that professional expertise is one of the most important skills that affect graduates' employability. This result is in line

with previous research showing that professional expertise drives success on the labour market (Allen and Van der Velden, 2011a). It is important to realize that professional expertise consists of three components that are closely linked: specific knowledge to solve occupation-specific problems, the ability to apply expert thinking and general academic skills like reflectiveness, analytical skills et cetera. One cannot develop professional expertise without a specific knowledge base and without general academic skills and both should be the prime focus of HE. But there are worries about the extent to which specific knowledge and academic skills are well integrated. In the view of many stakeholders in the focus groups the best way to integrate and further develop them is by incorporating 'real' work practices in the curriculum, e.g. through real or simulated case studies.

General academic skills are well developed

The conjoint study shows that general academic skills do not rank highly on the agenda of employers. What we see here is that HE successfully performs its screening and signalling function. Employers expect graduates to have sufficient general academic skills once they graduate from HE. That is one cannot imagine that graduates have developed professional expertise without having the proper general academic skills that go along with this. The results from the in-depth interviews and the focus groups give no indication that general academic skills are lacking.

Employers bare responsibility for the further development of expert thinking

Employers want graduates to be work-ready. One of the solutions stakeholders in the focus groups see is that students should have a period of practical experience in HE, for example through internships or through dual programmes that combine work and study. Study-related work experience has indeed been shown to increase the labour market success of graduates significantly and is a strong predictor of graduates' employability. But employers bare responsibility for the second component of professional expertise, the ability to apply expert thinking. To develop expert thinking requires another 5 to 10 years of work experience (see Hayes, 1981; Ericsson and Crutcher, 1990) and can thus not be a responsibility of HE alone. Therefore it is important for graduates to get the kind of jobs that enable them to develop expert thinking.

Interpersonal skills are becoming more and more important

The conjoint analyses show that interpersonal skills are almost as important as professional expertise. These include communication skills, teamwork skills et cetera. The literature review stresses that with the emergence of high performance workplaces, basic interpersonal skills are required from everybody. Nowadays it is not enough to be a specialist anymore. Graduates also need to be able to communicate with others: clients, co-workers or colleagues outside the organization. Lacking interpersonal skills can pose a serious threat to the whole team and the chances to achieve the organization's goals. In contrast to professional expertise interpersonal skills can also be developed outside HE and one can even doubt whether HE is the best place to develop them. Joining a team sport in adolescence might be a better way to develop team skills than working in groups during HE. This should pose no problem as long as there is no trade-off between developing interpersonal skills in HE and the development of relevant other skills. One of the presumed advantages of project work or other student centred methods is the claim that they can develop professional expertise as well as other relevant skills at the same time. We need to know more about whether this claim is justified but assuming that it is these methods should be deployed. However if using these methods comes at the expense of developing other relevant skills, this needs to be reconsidered.

Some room for specialization: innovative/creative and commercial/entrepreneurial skills

Where every graduate needs to have a good level of professional expertise and interpersonal skills, this does not necessarily relate to other domains such as innovative/creative skills or commercial/entrepreneurial skills as indicated in the conjoint analyses. Some employers have argued that in an organisation or in a team it might be enough to have just one or two persons who are strong in these skill domains, so here is clear room for specialization among graduates. Some might specialize to be the entrepreneurial type while others may specialize to be the innovator. There are some doubts among stakeholders in the focus groups whether these skill domains can be developed in HE or whether it is all innate (you either have or you don't). This may be true, but still much is expected from graduates with regard to these two domains. Innovation and entrepreneurship are considered to be the motor of economic growth and prosperity and graduates in particular are expected to play a role here. In the future HE will not only be expected to deliver professional experts but also graduates who are able to play a role in innovation and development of commercial activities. The extent to which HE will be able to fulfil this role will be one of the major challenges in the coming decades. We need to know more on how this can actually be developed in HE. Can these skills be 'taught' or is it more linked to personality traits such as self-efficacy and confidence? And if so how can the HE curriculum be adapted in such a way that these traits are further developed?

International orientation is a feather in the cap when the cap is good

Globalisation requires graduates to become more and more international oriented, and employers appreciate foreign experience as shown in their preference for graduates who did part or whole of their study abroad. However it cannot compensate for a lack of relevant work experience or a non-matching field of study. Employers associate having studied abroad with the following graduate characteristics: advanced international orientation, language skills and a demonstrated ability and willingness to deal with new situations, to take risks and to be open to new experience. It is interesting to note that having done part of the study abroad is more appreciated than having done the whole study abroad. Here we also found strong differences across countries. In some countries (UK and Sweden) graduates who did their entire study in the home country are usually preferred over graduates who did the entire study abroad, while the reverse clearly applies to countries like Italy, Poland, Spain, Czech Republic and Germany. Despite the Bologna process and the international recognition of study programmes, employers in some countries still hesitate to hire graduates with a foreign diploma. This may be related to perceived differences in quality or with unfamiliarity with the foreign degrees.

Strategic/organizational skills are needed for long-term career opportunities

The conjoint analyses show that strategic/organizational skills are important but are usually not expected from people who just graduated from HE. According to the experts in the focus groups, these are also not the skills that are typically developed in HE but are rather developed throughout the labour market career. But they do define long-term career opportunities of graduates. Graduates with strong strategic/organizational skills will have higher chances of proceeding to managerial jobs or other strategic jobs in the organisation. They are thus key to defining career opportunities in the long run.

Basic skills, like literacy, numeracy and strategic ICT skills should already be developed in secondary education

The in-depth interviews showed that the above-mentioned skills are indeed the relevant skill domains. But some employers also point out that graduates still lack some general

basic skills such as being able to write a report and having sufficient linguistic skills et cetera. In general this holds not only for literacy and numeracy skills, but also to having a sufficient level of strategic ICT skills. This does not mean that HE should pay more attention to these basic skills, as these should have been developed already in secondary education. But there is a need to guarantee these minimum levels upon entering HE (e.g. by having entry exams at the university or by having central exit exams at the end of secondary education that assess the level of these skills).

Graduates need more than flexibility to deal with increasing uncertainty

In the literature review we identified increasing uncertainty as one of the six trends that shape the world of work for graduates. This increasing uncertainty implies that graduates need the flexibility to adapt to a changing environment and the ability to stay employable throughout the life course. What this study made clear is that flexibility is rather the passive component to deal with uncertainty. Certainly graduates need to expect instability and changes. In that sense the world has changed. But in order to successfully cope with these changes they also need strategic/organizational skills, innovative/creative skills, or commercial/entrepreneurial skills as some employers pointed out in the focus groups. These are the typical skills that offer graduates the opportunity to actively change the environment. Where flexibility is the insurance policy that everybody needs to have in case of a fire, the other mentioned skill domains are like the Fire Brigade to extinguish the fire.

Relevant work experience is important

The conjoint analyses clearly show the importance of getting relevant work experience for graduates' employability. These findings are in line with previous results from the graduate surveys (REFLEX, HEGESCO). The problem is of course to get work experience in the first place. Internships and other forms of study-related work practices can help students to ensure a smoother transition to the labour market.

Long-term employability IS short-term employability

One dilemma HE is facing is whether it should focus on providing an entry ticket to the labour market or on ensuring long-term employability. The overall view in the focus groups is that this is a deceptive distinction. Long-term employability is not related to the level of specialization in a HE programme. It is more related with work experience than with general academic skills gained in initial HE. Moreover short-term employability is seen as key to the further development of professional expertise and the basis for long-term employability. The skills that are needed to ensure short-term employability are thus not different from the skills that are needed to increase employability in the long run.

Time is precious, so spend it well

Identifying certain skill needs does not imply that these skills need to be developed in HE. Education is faced with demands in many areas, ranging from knowledge in the traditional disciplines, interdisciplinary knowledge, as well as the 21st century skills, and meeting these demands takes time. By definition however, time is limited. Even if we could agree that it is possible to increase the workload for students in HE, there is a natural limit to the number of hours that can be spent in an academic year. This makes time in education precious, and we need to think very carefully how that time should be apportioned. When deciding the amount of time that should be spent on each of the different skill domains we need to ask ourselves the following questions:

- Is HE the most efficient environment to develop these skills?

- Are these skills more important to develop than other skills that could be developed in HE?
- What would happen if we did not develop these skills in HE? Can these skills be developed in the workplace as well?

As indicated above, professional expertise is typically the domain of HE. For other domains it is not really clear whether these can best be developed in HE or elsewhere. We lack systematic information on which skills should be developed in HE and how they can best be developed.

Moreover, even if we agree that certain skills need to be developed in HE, that does not necessarily imply that each student needs to have the same set of skills. The large differences among employers imply that HE should offer the palette to serve the mix of skills that are in demand on the labour market as well as the mix in existing skills in the student population. There is no need to have a 'one-size-fits-all' approach in HE. The question will remain however, what the minimum level of skills is in each domain that is required from each graduate to be employable and to be able to work with other graduates who have complementary skills. Determining the balance between the common set of skills required for every student and the set of skills that lend themselves for specialization on top of this common core is key to developing a proper curriculum for HE.



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Appendix 1

What is expected of graduates in the 21st century? Trends and required skills

A1.1 Introduction

This appendix is largely based on a literature review by Humburg and Van der Velden (2013). By and large we will follow this literature review and supplement it with information from the in-depth interviews.¹⁸ Humburg and Van der Velden identify six trends which form the basis of the changing role of graduates in economic life (see table A1.1).

Table A1.1

Trends and related skill domains

Trends	Skill domains
Knowledge society	Professional expertise
Increasing uncertainty	Flexibility
ICT revolution	Innovation and knowledge management
High Performance workplaces	Mobilization of human resources
Globalization	International orientation
Change of the economic structure	Entrepreneurship

These trends are the *knowledge society*, *increasing uncertainty*, *the ICT revolution*, *high performance workplaces*, *globalization*, and *the change of the economic structure*. Humburg and Van der Velden argue that by changing the nature and range of tasks graduates are expected to fulfil in today's economy, these trends generate new and intensify traditional skill demands, which they summarize as *professional expertise*, *flexibility*, *innovation and knowledge management*, *mobilization of human resources*, *international orientation*, and *entrepreneurship*.

A1.2 The knowledge society and professional expertise

Knowledge society

The first trend discussed by Humburg and Van der Velden is the transition from an industrial society, characterized by mass production, to a post-industrial one, in which the service sector takes on a prominent role and knowledge becomes a valued form of capital. For businesses, knowledge has become a major ingredient in gaining and sustaining competitive advantage (Wickramasinghe and Von Lubitz, 2007), and on a more general level this applies to nations as well. The emergence of the knowledge society increases the demand for knowledge workers (Reich, 1992), whose tasks are complex, non-repetitive and non-routine, and can therefore not be replaced by rule-based information and communication technology (ICT). This also implies that knowledge workers get more specialized and need to work with other specialists. As a Dutch employer noted during the interview:

"People have to think more and resolve more complex problems. This requires various specializations, which are found in various people. And that makes social skills so important." (3, Engineering, Engineering, The Netherlands)

Professional expertise

In order to prosper in the knowledge society, graduates need to be equipped with the skills necessary to fulfil tasks which are at the heart of knowledge work. A typical characteristic of knowledge work is a high level of unstructured decision making.

18. As a rule, we present quotes, followed by the respondent number, the occupational field for which he/she answers the question, the economic sector he/she is working in and the country name.

Unstructured decisions concern important, novel, non-routine problems for which no established procedure exists for how to solve them. Humburg and Van der Velden argue that in order to successfully make unstructured decisions, a knowledge worker needs to 1) be equipped with a body of knowledge related to the problem at hand, 2) be able to apply expert thinking, and 3) have broad academic skills. The important difference between a novice and an expert is that the expert can deviate from routine solution methods. Experts have at their disposal a collection of specific solution methods which vary with the problem at hand (Levy, 2010) and broad academic skills, such as analytical thinking and reflectiveness, help the expert to know when doing so is appropriate. The time necessary to become an expert in a job is commonly estimated to be some 5-10 years (Hayes, 1981; Ericsson and Crutcher, 1990).

A1.3 Increasing uncertainty and flexibility

Increasing uncertainty

The second trend discussed by Humburg and Van der Velden concerns the increasing uncertainty on the labour market resembled by a significant growth of the share of workers with fixed-term contracts and workers employed through temporary employment agencies. In the words of Castells: “[the] full time, career-seeking, long-term salaried employee is an endangered species” (Castells, 1996). It is interesting to note that this flexibility is not only related to the lower tier of the labour market. There is evidence that two main groups of workers have emerged. On the one hand, there is a highly valued core labour force of knowledge workers. This core labour force is increasingly employed in flexible and fluidly defined work settings. Although flexibility in these work settings is primarily functional and internal, many knowledge workers also work on temporary contracts. The counterpart of this core labour force in the upper tier of the labour market is a pool of part-timers, temporary workers, self-employed and high-turnover workers in the lower tier of the labour market, which has been growing in numbers in most developed economies over the last decades. In this segment, flexibility is clearly a disincentive for skill accumulation.

Although flexibility is increasingly demanded by employers, skills related to flexibility, such as the ability to rapidly acquire new knowledge, are not necessarily rewarded. Van der Velden and Allen (2011) show that skills related to flexibility are not related to indicators of labour market success. They can better be interpreted as an insurance policy: graduates need to have them in case things get worse, but there is no wage premium attached to it, nor are they related with better career perspectives. On the contrary, to some extent flexibility can signal a lack of specific skills and it is these professional specific skills that are the best predictor of graduate employability (Van der Velden and Allen, 2011). But it can help to reduce the number and duration of possible unemployment spells.

Flexibility

Although HE graduates have a higher chance of belonging to the valued core labour force than medium or low educated workers (DiPrete, Goux, Maurin and Quesnel-Vallee, 2006), they nevertheless increasingly work in an uncertain environment. Pavlin and Svetlik (2011) indicate that almost half of the HE graduates experience some sort of reorganization during the first five years after graduation and these figures date from before the outbreak of the economic crisis. Although we have no comparable figures for lower and medium educated, it certainly means that graduates need to be prepared

to successfully master periods of increased uncertainty. In the words of Humburg and Van der Velden (2013), to remain flexible means to expect the unexpected, to stay employable, to reskill and retrain, to leave familiar work environments and to get acquainted with new tasks.

"I thus expect people to be more dynamic and adapt faster. Be even more proactive in uncovering underlying factors." (6, Financial services, Bank, The Netherlands)

"They will have to get used to it and they have to be flexible enough and ready enough for any change in their work environment" (9, ICT, ICT, Greece)

What skills precisely contribute to flexibility? Above all, individuals need to assess the possible consequences of growing uncertainty and the flexibilization which comes along with it for themselves. They have to incorporate uncertainty and the need to be flexible into their life plans and personal projects. In addition, flexibility is often equated with general skills such as the ability to learn how to learn. The argument is that the greater the range of different types of situations a skill applies to, the more it helps the individual to adapt to new environments and circumstances.

"The life has become faster [...]. They should be able to acquire new things on the job very quickly, adapting quickly...." (7, Media and communication, Media, Estonia)

"You must be able to quickly deal with change and learn new insights. Society is developing at a very fast pace, and things will only become faster. Today's knowledge will be out of date in a short while, so you have to learn quickly." (4, Policy, Construction, The Netherlands)

"The last years we face changes all the time, new colleagues, new buildings, new job tasks, new teams etc [...] It is important to us the employee knows how to deal with all these and adapt to everything new. 10 years ago this was not the case; things were more stable without surprises". (1, Financial services, Finance, Greece)

A1.4 The ICT revolution and innovation and knowledge management

The ICT revolution

Of the six trends Humburg and Van der Velden identify, technological change is without doubt the most important one, not only because it has changed the world of work dramatically, but also because it is a driver of all the other trends. There is widespread consensus that the introduction of ICT into workplaces is skill-biased - that it favours higher skilled workers. For repetitive, routine tasks - often performed by low and medium skilled workers - ICT can be seen as labour replacing. ICT is faster and cheaper than people in performing these tasks. With regard to knowledge work and professional expertise, however, ICT is mostly instrumental and complements labour (Levy, 2010). Besides being a complement to (mostly skilled) labour, instruments in the form of upgraded equipment make job tasks more complex (Hage and Powers, 1992). The introduction of ICT has revolutionized the way data and knowledge is generated and diffused. There is today an unprecedented range of resources easily available. In the 21st century, the challenge is not to access knowledge, but to manage, integrate and evaluate it. In this regard, graduates play a crucial role within organizations.

Organizations' competitiveness is to a large extent based on their capacity to introduce entirely new products or processes, or to substantially improve existing ones.

"We cannot compete just on labour cost: to stay on the market we must be able to propose to our clients solutions and innovation. The future employees will need these skills more than in the past." (4, Engineering, Industry, Italy).

"Nowadays, we know that innovation is a critical success factor." (3, ICT, Enterprise Software, Spain)

Processed, well managed and systematically communicated information is crucial to organizations' innovative capabilities. It has been suggested that organizations' innovative capacity depends on diffusion of knowledge to a broad range of key individuals within them (OECD/Eurostat, 2005).

Innovation and knowledge management

The ICT revolution does not only impact the skills that are directly related to it, but changes the nature and content of all other skills as well. It is hard to conceive of any professional skill that is not affected by ICT. Also so-called 'soft' skills like communication skills have significantly changed in character due to the ICT revolution. And even the most basic skills like literacy and numeracy have been impacted by ICT (OECD, 2012). But the most important implications of ICT are related to innovation and knowledge management.

HE graduates are expected to play a particular role in the innovation of goods and services. This relates not only to the innovation capacity but also to the ability to create an environment in which knowledge production and diffusion is optimised (Corvers, 1999). Allen and Van der Velden (2011b) relate innovation and knowledge management to the whole process from developing ideas to implementation of these innovations in the work organization. Graduates are expected to contribute in different ways to this process. They can directly contribute to an innovation by having a high degree of innovative capacities, such as creativity, curiosity and a willingness to question the obvious and normal.

"I think creative thinking has become more important than it was in the past." (4, Engineering, Engineering, Greece)

They can also contribute by gaining access to new ideas developed elsewhere. This relates to the ability to notice opportunities, to have access to relevant networks, and to have the strategic ICT skills (skills related to using ICT to achieve specific or more general goals: Van Dijk, 2005) that are crucial for introducing new ideas in an organization.

"But I think innovation is also going to become very important." [...] It's necessary to compete with China." (9, Policy, Engineering, The Netherlands)

Finally innovation and knowledge management also relates to the ability to implement ideas, that is to take an idea from the drawing board to the work floor. This relates closely to the strategic-organizational skills that we will discuss in the next section, as well as to a part of the entrepreneurial skills.

A1.5 High performance work places and mobilisation of human resources

Emergence of high performance work places

The centrality of knowledge work and increasing levels of market uncertainty requires organizational changes within firms. It is widely believed that traditional bureaucratic management stifles innovation and is ill-equipped for optimally using the potential of knowledge workers. This has led to another major trend that Humburg and Van der Velden identify: the emergence of 'high performance work places'. These relate to organizations which heavily rely on knowledge workers to increase productivity and competitiveness, and which adapt their organizational structure accordingly (OECD, 1999). What distinguishes them from other organizations is that the high performance work places they design involve a broad range of skills and task variety, the extensive use of team work, reduced hierarchical levels, and the delegation of responsibility to individuals and teams (Betcherman, 1997). As it becomes increasingly difficult for managers to keep pace with technological developments, an argument in favour of giving knowledge workers more weight within the organization is to better align strategic decisions with the latest innovations. Moreover, flattening hierarchies potentially increases the speed of decisions in the face of market uncertainty.

Mobilization of human resources

The importance of interpersonal skill is not unique to the 21st century (Dede, 2010). It is obvious, however, that the skills demanded of workers in settings characterized by autonomous teams with shared decision making differ from those of workers in traditional hierarchical work settings. In high performance work places teams and workers are given responsibilities ranging from production, training and product innovation to customer relations and marketing. This involves a high degree of information-sharing and communication. Working in teams and making shared decisions, demands workers to be able to communicate effectively, evaluate their work and the work of others, influence team mates and to seek advice, information and support when appropriate.

"Probably, companies will demand even more interpersonal skills. Teamwork has always been relevant, but its importance keeps increasing: being able to move within the organization, relating to each other in an organizational level, has become fundamental." (7, R&D, Oil and gas company, Spain)

"When we started 20 years ago with the positions for the engineers, then it was clearly just technical, they did not have any contacts with clients and it was actually a responsibility of other professionals, but now the communication skills and working in teams have become more important." (3, Engineering, Manufacturing, Estonia)

Teamwork does imply that employees do bear responsibility for their work:

"They must also learn to take their decisions on their own, team work does not mean to not be able to work alone." (1, Financial services, Banking, Italy).

In general reduced hierarchical levels open up opportunities for professional development. The work of knowledge workers is outcome oriented and the employers' capacity to monitor the working process is low. This implies that knowledge workers in high performance work places must have a high degree of strategic-organisational skills. They must know their position in the organization and must be able to link their work

to the tasks of others. In high performance workplaces, strategic thinking, being able to set one's task in the greater organizational context and self-management become key skills for professional and organizational success.

"In general, employees are expected to contribute ideas to help realize organization objectives. Strategic and organizational skills have thus become an important competence. Ten years ago, this was mainly the responsibility of top management." (10, Legal, Health and welfare, The Netherlands)

"The evolution towards more self-managed teams has ensured that competences like independence and strategic/organizational skills have become more important." (10, Legal, Health and welfare, The Netherlands)

A1.6 Globalisation and international orientation

Globalization

Globalization – the strengthening and acceleration of world-wide interconnectedness – is the fifth trend that Humburg and Van der Velden identify. Never before has an economy had the capacity to work as a unit in real time on a planetary scale (Castells, 2000). Globalization is characterized by fast flows of ideas, financial capital, goods, services and people across national borders. As a result, interaction with people from other cultures and with other linguistic backgrounds becomes more common and is now part of the working life of a substantial proportion of the higher educated workforce. Around one third of European graduates work in organizations whose scope of operation is international (Pavlin and Svetlik, 2011). The same proportion indicates that the ability to speak and write in a foreign language is highly required in their job.

"We are increasingly working internationally. So we need young people who already speak English but who are also willing to go abroad at any time. We don't want someone who is afraid to leave their family and friends." (7, R&D, Pharmaceutical Industry, France)

International orientation

A precondition of any goal-oriented interaction between individuals of diverse national backgrounds is to have a common language foundation. Individuals working in international contexts have to be able to understand spoken messages, to initiate, sustain and conclude conversations and to read, understand and produce texts appropriate to the firm's needs (European Commission, 2007). But foreign language proficiency is not enough. An international orientation also entails the ability to understand other cultures, and a willingness to appreciate the limitations of one's own culture. This includes knowing – or at least being aware of – particular cultures of e.g. negotiation, politeness, decision making, or team work.

A1.7 Change of the economic structure and entrepreneurship

The change of the economic structure

As a final trend, Humburg and Van der Velden discuss the changes in the economic structure. Over the last decades deregulation, technological change and globalization have fundamentally changed the competitive environment in which organizations operate and have resulted in an unprecedented growth of the service sector. At the same time,

technological changes have reduced costs and changed optimal firm size. Together with the deregulation of markets this has created opportunities for SMEs (Brock and Evans, 1989). SMEs are thought to be more flexible (Carlsson, 1989) and innovative (Carree and Thurik, 2003), although this has been challenged as well (e.g. Parker, 2001).

The observed growth of importance of SMEs for employment in combination with the flattening of hierarchies within firms increases the demand for graduates who are comfortable with assuming responsibility and with contributing to the success of the organization through entrepreneurship. Audretsch and Thurik (2000) argue that entrepreneurship is one of the main ingredients of global competitiveness. It is important to understand that entrepreneurship is not confined to knowledge workers working in the private sector but is also relevant for those working in the public sector.

"Year after year, selling is becoming more important than everything else. Everybody will have to bear in mind the commercial needs of the company, even if we are talking about a journalist!" (2, Media, Web, Italy).

Today, one of governments' main challenge is to create institutions which best unfold creative capacity and innovation and which facilitate economic growth. Against this background, institutional entrepreneurs are actors who purposefully leave existing paths and recombine existing governance mechanisms to create new, innovative institutional environments (Crouch, 2005). The REFLEX and HEGESCO studies showed that four out of five graduates working in the private sector indicate that their organization operates in a market that faces high or very high levels of competition. But this also applies to one out of three graduates working in the public sector or non-profit sector. On average the competition in the public or non-profit sector is solely on quality while the competition in the private sector is both on quality and on price (Pavlin and Svetlik, 2011).

"The portfolio of financial products we offer continues to get larger and larger, plus there is, and will probably be, stiffer competition; therefore, we will probably put more stress on commercial skills." (1, Financial services, Finance, Czech Republic)

Entrepreneurship

Whenever knowledge workers assume a central role within an organization, they have to be increasingly alert to changes in markets and innovations. The higher the degree of autonomy knowledge workers enjoy within the organization, the more important their ability to independently contribute to the organization's economic and commercial success. This is true for owners of a firm as well as for employees both in the private and the public sector. Knowledge workers are increasingly expected to possess entrepreneurial skills and commercial awareness. This refers to the ability to perceive changes in the market and to identify competitors as well as commercial risks and opportunities. It also pertains to the awareness of the costs associated with one's activities and costs of decisions. Potentially most importantly, it refers to the ability to recognize the commercial value of an idea and to search for and pursue opportunities to turn them into successful products.

An Italian employer shows how cost-awareness has become part of the work of ICT professionals and how they are encouraged to identify ways in which ICT tools could be used to create cost savings within the organization:

"In the past, IT has not necessarily needed to understand such a complex set of business issues and [...] longer term strategy as they do now, but to be successful [...] you need to be really quite business focused." (6, ICT, ICT, Italy)

Lazear (2004, 2005) argues that entrepreneurs need to possess a relatively broad and balanced set of skills which enables them to pursue opportunities they identify in the face of uncertainty and obstacles. This requires skills that typically surpass the skills related to professional expertise and innovation. As Lazear argues, professional experts may be very good in designing in new products, but this does not necessarily imply commercial success. For successful entrepreneurs it is important to be able to take a step backwards from the technical details in order to concentrate on business value and market relevance. An entrepreneur needs to possess the ability to handle the complex relationship between a product's price, quality and degree of innovation. As a German employer formulated it:

"A good idea is only valuable if it can be implemented. And in the end, the ability to implement it can always be expressed in terms of costs." (8, Organizational advisor, Management consultancy, Germany)

A1.8 Skills to be measured in this study

In this appendix we have distinguished six trends and related skills domains. The skills domains are: professional expertise, flexibility, innovation and knowledge management, mobilization of human resources, international orientation, and entrepreneurship. As indicated above, each of these skill domains encompass multiple aspects. These are summarized in Table A1.2.

Not all of these aspects could be addressed in the conjoint study and we therefore needed to focus on the most relevant ones.

First we decided to leave out the domain of 'flexibility' entirely from the conjoint study as the literature review shows that this skill domain is not rewarded as such, but rather serves a function as 'insurance' against changes in the environment.

Second, we decided to take up the domain of international orientation as an attribute in the first step of the conjoint study, indicated by having done part or the whole study abroad. Although this may not be entirely the same as the related underlying domain of 'international orientation', employers often associate this type of experience with having an open mind and intercultural skills. This was also checked in the in-depth interviews where we explicitly addressed the relevance of international orientation.

For the domain 'professional expertise', we decided to concentrate on the first component (specific body of knowledge) and the third component (general academic skills) as these are expected to be acquired in HE. The ability to apply expert thinking (the second component) is part of the expertise development that usually takes another 5-10 years of work experience (Hayes, 1981; Ericsson and Crutcher, 1990) and can therefore not be considered as something that HE graduates already possess. Note that we will refer to 'specific body of knowledge' as 'professional expertise' in this report. The third component of professional expertise will be referred to as 'general academic skills'.

Table A1.2

Aspects of the six skills domains

Skill domains	Aspects of skill domains
Professional expertise	<ul style="list-style-type: none"> • Specific body of knowledge • Ability to apply expert thinking • General academic skills (e.g. analytical thinking, reflectiveness)
Flexibility	<ul style="list-style-type: none"> • Ability to deal with changes and uncertainty • Ability to learn new things • Employability skills (e.g. the willingness to invest in further education and training, and the ability to plan and take responsibility for one's own career)
Innovation and knowledge management	<ul style="list-style-type: none"> • Innovative/creative skills (creativity, curiosity) • Network and strategic ICT skills • Implementation skills
Mobilization of human resources	<ul style="list-style-type: none"> • Interpersonal skills (communication skills, teamwork skills) • (Self-)management skills (working within budget and time restrictions, leadership) • Strategic-organizational skills
International orientation	<ul style="list-style-type: none"> • Foreign language skills • Intercultural skills
Entrepreneurship	<ul style="list-style-type: none"> • Ability to identify commercial risks and opportunities • Cost awareness • Ability to turn an idea into a successful product

For the domain of 'innovation and knowledge management', we decided to concentrate on the first component: innovative/creative skills. The second component (network and strategic ICT skills) was considered to be part of the basic skills that everybody needs to have, regardless of the kind of job they end up in, so we decided to leave that one out. We also left out the third component, implementation skills, as these are strongly correlated with the component of strategic/organizational skills in the domain of 'mobilization of human resources'.

For the domain 'mobilization of human resources', we decided to concentrate on two components: interpersonal skills and strategic/organizational skills. We left out the component of (self-)management skills. These relate to two sub dimensions: self-management skills which reflect more basic skills that every HE graduate is supposed to have and leadership skills that are not expected to be called upon in the first years after leaving HE.

Finally, we decided to concentrate on the third component of the domain of 'entrepreneurship', as this is the most important one and to some extent also encompasses the first two components.

Table A1.3 presents an overview of the skills tested in the conjoint study and the in-depth interviews and the definition of each of these skills given to the respondents.

Table A1.3

Definition of skills tested in the conjoint study and in-depth interviews

Skill domain	Skill measured in study	Definition
Professional expertise	Professional expertise (specific body of knowledge)	Knowledge and skills needed to solve occupation-specific problems
	General academic skills	Analytical thinking, reflectiveness, and the ability to see the limitations of one's own discipline
Flexibility	Not measured	
Innovation and knowledge management	Innovative/creative skills	Ability to come up with new ideas and to approach problems from a different angle
Mobilization of human resources	Strategic/organizational skills	Ability to act strategically towards the achievement of organizational goals and priorities
	Interpersonal skills	Ability to work in a team and communicate and cooperate effectively with diverse colleagues and clients
Entrepreneurship	Commercial/entrepreneurial skills (ability to turn an idea into a successful product)	Ability to recognize the commercial value of an idea and to search for and pursue opportunities to turn them into successful products
International orientation	International orientation (both aspects)	Proficiency of foreign languages and intercultural skills, that is the ability to work with people from different cultural backgrounds and to adapt to new cultural contexts



Appendix 2

Choice Based Conjoint Analysis methodology
and data description

A2.1 Introduction

This appendix briefly describes the conjoint analysis approach and the methodology which has been applied to estimate employers' preferences. We also give some descriptives on the data collected.

A2.2 What is conjoint analysis?

Conjoint analysis (also called vignette study) is used to measure respondents' preference for specific product features in order to learn how demand for a particular product or service is related to price, and to be able to forecast what the likely acceptance of a product would be if brought to the market. Although having its origins in commercial consumer research, conjoint analysis has been extensively used in the health as well as the transportation sector to inform public policy. Rather than directly asking survey respondents what they prefer in a product, or what attributes they find most important, conjoint analysis employs the more realistic context of respondents evaluating hypothetical product profiles. By letting respondents evaluate enough profiles (and a good design to minimize the number of choices respondents have to make), the results numerically show how valuable each of the attribute levels is relative to the others, i.e. it disentangles the utilities of the attribute levels under consideration. Although having its origins in commercial consumer research, conjoint analysis has been extensively used in the health as well as the transportation sector to inform public policy.

The Choice Based Conjoint (CBC) is a relatively new (since the early '90s) method for conducting conjoint studies. In contrast to other conjoint task designs (e.g. ranking of profiles), CBC analysis asks respondents to select a single full profile stimulus from a computer generated choice set. With this technique respondents choose from a set of alternatives (often three to six alternatives). A full profile approach is used and the stimuli are described as profiles using particular levels of all attributes. Respondents choose one stimulus from sets of stimuli, they don't rate or rank them. There is always an option to select none of the profiles contained in the choice set: respondents can refuse to choose any of the presented product profiles.

In this study we used this method to mimic the selection and hiring process of employers by showing them three hypothetical profiles of job candidates at a time and asking them to select one of them (or reject all). Respondents are presented with three full profile stimuli and a none option at a time and are asked to select the one they would invite to a job interview (first step) or hire (second step). This evaluation of full profiles was repeated 10 times in both steps, so that each respondent had to evaluate 30 profiles per step. A "shortcut" design ensured that respondents were presented with balanced sets of profiles.

The advantage of a choice-based design approach is its realistic choice environment as well as the ability to estimate individual level part-worths (conditional logit coefficients). The model estimation is based on the conditional logit framework introduced by McFadden (1974). It assumes that respondents' choices are made on the basis of observable characteristics of alternatives (graduates). The utility level (here: attractiveness to employers) of each graduate is assumed to be a linear function in graduate attributes (here: CV attribute levels in the first step and skill levels in the second step), x_j , with common parameter vector β .

$$y_j^* = x_j\beta + a_j, j = 0, \dots, J$$

The probability that graduate j is invited to an interview (first step) or hired (second step) can be written as:

$$P_j(x) = \frac{e^{(x_j\beta)}}{\sum_{h=0}^J e^{(x_h\beta)}}, j = 0, \dots, J$$

A hierarchical Bayesian approach was used to derive robust individual level preferences (Sawtooth Software, 2009). Part-worth estimation was done by TNS Infratest Munich. The final data set consists of part-worths for each attribute level for each respondent.

A2.3 Development and testing of questionnaire

Before the main survey was conducted, the questionnaire and the vignettes were tested in cognitive labs as well as in a Dutch pilot, after which the survey was slightly adjusted. In the cognitive labs, respondents were asked to follow a thinking aloud process and comment their decision-taking in order to follow their reasoning and to learn about the difficulties respondents might have in assessing the questions and vignettes. The respondents perceived the two step selection procedure as clear and realistic. In addition, they confirmed that the selection of attributes represented relevant features in their selection and hiring process of HE graduates. The interviewees indicated that they had no problems handling the seven attributes to decide which candidate they would choose. On the contrary, when presented with vignettes containing only four or five attributes, they felt that they did not have enough information to make a good choice. The cognitive labs led to some minor changes in the wording of questions and introduced the need to visually highlight the most important words.

Following the cognitive lab, we first conducted the conjoint study in the Netherlands to test the questionnaire and vignettes. The Dutch pilot confirmed that the questionnaire and the vignettes were working appropriately and that there were no problems with the routing.

After the pilot had been successfully completed, the English language master questionnaire was translated into all other languages needed for the survey. The translations were then checked by ROA and TNS NIPO with the help of native speakers. Special attention was paid to vignette attributes, key framing expressions such as “recent higher education graduate” or “full-time position” as well as key routing elements such as occupational fields. The translation of educational degrees was done with participation of national educational experts.

A2.4 Graphical presentation of part-worths in the report

For the graphical illustrations in the report, part-worths are rescaled according to the points method laid out in Hair, Black, Babin, Anderson and Tatham (2006: 534), which

gives each respondent equal weight and constraints the rescaled part-worths to be zero or above. For each respondent, rescaling is done according to a two-step process. First, the minimum part-worth within each attribute is set to zero and all other levels of the same attribute are rescaled to be above zero by adding the value of the minimum part-worth. In a second step, each (modified) part-worth is divided by the total of part-worths and multiplied by the number of attributes times 100 (in our case 700). This type of rescaling does not affect the relative magnitude of part-worths but makes comparison across attributes and respondents possible. The points method also has the advantage of only presenting zero or positive values. This inhibits readers to wrongly associate negative part-worths with negative utility.

A2.5 Share of preference

The share of preference provides an estimate of the share of employers who would invite/hire a certain graduate profile. The share of preference is simply calculated by defining the attribute levels (x_j) of a certain number of hypothetical graduates ($j=0,...,J$) and using the logit rule presented above to calculate $P_j(x)$ taking each respondents part-worths as β . As the conjoint method used in this study contained a none-option (respondents were able to indicate whether they preferred to invite/hire none of the proposed graduates), the share of preference charts will always contain j graduates plus an estimate of the share of employers who would accept none of the proposed graduates.

A2.6 Data collection

We made use of the on-line consumer and business panels from TNS. These are representative panels that are being used for all kind of in-line surveys. In all countries a preselection of potential respondents was made.

In most countries (France, Germany, Italy, the Netherlands, Spain and the UK) this was done on the basis of existing information on the following question: "For which of the following categories are you a Decision Maker, Purchase Influencer or Both?". Only respondents who answered 'yes' to the following categories were taken up in the original sample: 'HR/Personnel Services' and 'Recruiting New Hires'. For the Czech Republic, initial selection took place on the following question: "What is your professional position in the company you work for?" Answer: "Director/Manager". For Poland, initial selection took place on the following question: "How would you describe your role in the purchase of the following items at work: Services related to human resources / personnel?" Answer: "Decision maker" or "Influencer". For Sweden initial selection was based on the following three questions (only one correct answer needed):

- What is your primary role in your organization? Answer: "HR manager" OR
- What is your professional position in the company you work for? Answer: "Director/Manager" OR
- Please choose which departments/products you have influence or decision making authority on spending/purchasing? Answer: "Human Resources (Employee Benefits, Retirement Pro)"

In all countries targets were set to reach 100 completed questionnaires. After this target was reached, the data collection was closed. This target was reached in all countries

except Czech Republic and Poland with 64 and 92 completed questionnaires each. For the Netherlands we decided to oversample, thus compensating for the losses in these two countries. This resulted in 147 completed questionnaires in the Netherlands. Table A3.1 gives an overview of the data collection and the response. Overall some 20% of the initial invites responded to the questionnaire. One has to keep in mind though that the data collection stopped after reaching the target so that response percentages are somewhat downward biased. Some 57% passed the first filter question in the questionnaire: "Have you been involved in recruiting a higher education graduate in the past 5 years? With higher education graduate we mean somebody who graduated from a university or college."

Table A2.1
Data collection and response

	NL	CZ	FR	DE	IT	PL	ES	SW	UK	Total
1. Number of invites	1726	1787	1603	1796	2000	999	1179	3036	2000	16126
2. Number of initial respons	606	398	302	362	311	154	250	527	348	3258
3. In % of 1	35,1%	22,3%	18,8%	20,2%	15,6%	15,4%	21,2%	17,4%	17,4%	20,2%
4. Number of filter 1 (involved in recruiting a HE graduate in the past 5 years)	469	164	164	150	149	142	132	317	162	1849
5. In % of 2	77,4%	41,2%	54,3%	41,4%	47,9%	92,2%	52,8%	60,2%	46,6%	56,8%
6. Number of filter 2 (involved in recruiting for one of the 7 occupational fields)	227	145	115	112	115	111	110	267	114	1316
7. In % of 4	48,4%	88,4%	70,1%	74,7%	77,2%	78,2%	83,3%	84,2%	70,4%	71,2%
8. Number of completed questionnaires	147	64	100	100	100	92	100	99	101	903
9. In % of 6	64,8%	44,1%	87,0%	89,3%	87,0%	82,9%	90,9%	37,1%	88,6%	68,6%

Of the ones who passed the first filter, not everybody was involved in hiring HE graduates in the occupational fields we selected. The second filter question was: "Have you been involved in recruiting a higher education graduate for any of the following positions in the past 5 years?" With the following answer categories:

- Financial professional (e.g. accountant, financial analyst, investment advisor);
- Engineering professional (e.g. civil engineer, mechanical engineer, chemical engineer);
- Electrotechnology engineer (e.g. electronics engineer, telecommunications engineer);
- ICT professional (e.g. system analyst, software developer);
- Media and communication professional (e.g. public relations officer, media consultant, journalist);
- Legal professional (lawyer, jurist, legal advisor);
- Policy professionals/organisational advisors (e.g. policy analyst, human resource expert, management consultant)
- Other, please specifyfuy

Another 71% of respondents involved in hiring HE graduates had experience in hiring for one of these occupational fields. And of these, some 69% completed the questionnaire. As Table A2.1 shows there are some differences in these percentages across countries. The low completion rates in the Netherlands and Sweden are due to the closing of the data collection after having reached the target.

A2.7 Data descriptives

During the study, we collected information on respondents degree of involvement in the selection of HE graduates in the past five years. We also asked them on how many occasions they had been involved in recruiting new employees in the past five years, as well as their position in the organization (general management, HR management, specific recruiter or other). We then followed up with questions on the organization: size of the organization, sector of the economy, the proportion of HE graduates currently employed in the organization and the scale at which the organization is mainly operating (local, regional, national or international). In total, 903 respondents participated in the study. The descriptives with respect to background variables are as follows:

Table A2.2
Descriptive statistics

	N	Percent
Country		
CZ	64	7.09
FR	100	11.07
DE	100	11.07
IT	100	11.07
NL	147	16.28
PL	92	10.19
ES	100	11.07
SE	99	10.96
UK	101	11.18
Involvement		
Responsible	491	54.37
Involved	412	45.63
Occupational field		
Financial services	160	17.72
Engineering	186	20.6
Electrotechnology	58	6.42
ICT	171	18.94
Media and Communication	122	13.51
Legal Services	133	14.73
Policy	73	8.08
Position		
General management	442	48.95
HR management/-staff	234	25.91
specific recruiter	81	8.97
Other	146	16.17
Nr of graduates recruited in last 5 years		
1-5	446	49.39
6-10	233	25.80
11-25	116	12.85
>25	108	11.96
Firm size		
<20	301	33.33
20-49	140	15.50
50-99	114	12.62

	N	Percent
100-249	137	15.17
>250	211	23.37
Proportion of graduates in firm		
<0.25	333	36.88
0.25-0.50	277	30.68
0.50-0.75	149	16.50
>0.75	144	15.95
Economic sector		
Financial services	114	12.62
Engineering ICT Construction	214	23.70
Media and Communication	61	6.76
Legal Services	51	5.65
Public Administration	62	6.87
Health and Welfare	47	5.20
Education	45	4.98
Manufacturing	84	9.30
Wholesale and Retail	82	9.08
Other	143	15.84
Market scale		
Local	142	15.73
Regional	219	24.25
National	324	35.88
International	218	24.14



Appendix 3

The in-depth interviews and focus groups

A3.1 Development of questionnaires and interviewer guidelines

In order to make sure that the interviews would address all relevant issues and would be comparable across countries and interviewers, a detailed questionnaire and interviewer guideline was developed.

Testing of interviews

The questionnaires and the interviewer guideline were tested in a small scale Dutch pilot with three respondents. On the basis of the Dutch pilot, the interview guidelines were adapted for the remaining interviews in the Netherlands as well as the interviews in the other countries.

The English language master questionnaire was translated into all other languages needed for the survey. Wherever possible, countries made use of the earlier translated questionnaire for the conjoint study. This was done to ensure comparability for the main keywords such as the vignette attributes.

TNS NIPO held an online workshop to train the TNS agencies in the other countries to explain the purpose of the in-depth interviews, to highlight the different elements and possible pitfalls and to answer any remaining questions.

A3.2 Data collection of in-depth interviews

Data collection took place during the period September 2012 - December 2012 by national TNS agencies. In general there were no major problems reported by the countries. In most cases respondents were recruited either through the conjoint study or by specific recruiting agencies. The in-depth interviews explicitly included respondents from R&D fields as these were not included in the conjoint study. In each country 10 interviews were held with the aim to have a good distribution across the different occupational fields. The response distribution across countries and occupational fields is shown in table A3.1. The interviews lasted about 60 minutes.

Table A3.1

Distribution of in-depth interviews across countries and occupational fields

Country	Number of in-depth interviews by country							Total
	Finance	Engineering/ Electro technology	ICT	Media and communication	Legal	Policy	R&D	
Estonia	2	2	2	2	1	1	0	10
Czech Republic	2	2	2	1	2	1	0	10
France	2	1	1	1	1	2	2	10
Germany	2	1	1	1	1	2	2	10
Greece	2	2	2	2	2	0	0	10
Hungary	2	2	2	1	1	2	0	10
Italy	2	2	2	2	1	1	0	10
The Netherlands	2	1	2	1	2	2	0	10
Poland	2	2	2	1	1	2	0	10
Spain	2	2	2	1	1	0	2	10
Sweden	2	1	1	1	2	1	2	10
United Kingdom	2	1	1	1	1	2	2	10
Total	24	19	20	15	16	16	10	120

A3.3 In-depth interviews with multinational companies

A total of 10 interviews were conducted with employers from major multinational companies. The main reason to have separate interviews with multinational companies is that they are typically underrepresented in the conjoint study and thus also in the national in-depth interviews. Researchers from ROA were responsible for conducting and analysing the results of the in-depth interviews with multinational companies. The choice of companies was based on both content and pragmatic reasons. In terms of content a good distribution across the different occupational fields would have to be ensured. Specifically, the field of R&D should be well represented. Interviews were held with multinationals from the following sectors (numbers between brackets): legal services (1), media and communication (1), R&D (3), policy (1), financial services (1), ICT (2) and engineering (1). To reduce the costs of travelling, companies in the UK, France, Germany and the Netherlands were chosen. Data collection took place during the period September 2012 - November 2012 by ROA.

A3.4 Reporting of the results of the in-depth interviews

ROA developed a standard reporting format to ensure the comparability of the reports across the different countries. On the basis of this format, TNS NIPO first reported on the results for the Netherlands. After discussing this report, the format was slightly adjusted to avoid any ambiguities. All countries followed this final format.

A3.5 Development and testing of focus groups

To ensure comparability across the different countries, a detailed guideline was developed for the leader of the focus groups (all experienced personnel from the local TNS agencies). All topics were introduced to the focus group participants in a hand-out with a short text highlighting the dilemma (see web appendix).

Before the focus groups were conducted, the design and guidelines were tested in the Netherlands at the premises of TNS NIPO. On the basis of the Dutch pilot, the hand-out and guidelines were slightly adapted. TNS NIPO held an online workshop to train the TNS agencies in the other countries to explain the purpose of the focus group, to highlight the different elements and possible pitfalls and answer any remaining questions.

