

Towards Generating Strategic Competences in Higher Education

# Findings from the European Project “Higher Education as a Generator of Strategic Competences” (HEGESCO)

## Main Conclusions

In general, European higher education graduates enjoy a rather smooth transition to the world of work. Most graduates find work within a few months of graduation, and although the first job is sometimes less than ideal, five years after graduation most are employed in jobs that fit well with their qualifications. Graduates typically work fulltime, enjoy a high degree of job security and earn good wages. There is of course room for improvement. For example, in most countries only around a quarter to a third of graduates reported that the current job offers good career prospects, and although most graduates are satisfied with their current job, around a third of graduates in most countries indicate that they are not particularly satisfied. Even in terms of those aspects on which most graduates perform well, there are countries and fields of study that do less well.

However, the main conclusion that can be drawn from this study is that the new and candidate member states (NCMS) cannot be placed as a uniform block into this category. In fact, the differences between the individual NCMS are in most cases more striking than their differences with respect to the southern and northern European REFLEX countries. Different NCMS can be found across the full spectrum of countries according to a range of dimensions, including labour market entry, early career mobility, match between qualifications and work and unemployment experience. On a general typology of countries, Estonia forms together with Norway, Finland and the Netherlands a group of countries with generally a short unemployment duration, and a low incidence of unemployment, underemployment, overeducation and underutilization of skills. The same analysis places Turkey together with Spain as the countries most likely to experience problems on these dimensions.

*The HEGESCO (short for **Higher Education as a Generator of Strategic Competences**) project addresses the question of the contribution of higher education systems to competence development. It seeks evidence on the competences needed for successful entry into the labour market on the basis of an international quantitative survey among graduates conducted 4-5 years after graduation in more than 20 European Countries (the gross sample framework together with the REFLEX project encompasses over 70,000 graduates). It also integrates qualitative surveys among employers and representatives from higher education institutions. The partners of the project are:*

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All information on requesting the data bases from the Hegesco project are available at <http://www.hegesco.org>; for the large scale survey of the Reflex project see <http://www.fdewb.unimaas.nl/roa/reflex/>.

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Key factors contributing to a successful transition from higher education to the labour market include the acquisition of study-related work experience during higher education and strong links between HE institutions and the labour market. Graduates also appear to benefit from attending programmes that are academically prestigious, but not necessarily demanding. Experience abroad is also positively related to wages, particularly in the NCMS. Good grades also appear to reduce search duration in the NCMS.

The work environment encountered by graduates can be described as dynamic, innovative, competitive, quality-oriented, and often international. As many as half of all graduates across all countries have undergone a reorganization within the last 12 months, and a similar proportion work in organizations that can be described as innovative, and that rely heavily on higher education graduates for the introduction of their innovations. The vast majority of graduates working in the private sector across all countries report working in an organization experiencing high or very high levels of competition. Arguably more remarkable is the fact that around two in every five graduates working in the public sector also report high levels of competition. Competition by quality rather than price prevails across all countries/regions. Many graduates work in organizations with an international scope of operations.

A large majority of graduates in all countries/regions work as professionals, but in comparison with graduates in northern and southern European REFLEX countries, those in the NCMS work relatively more often as managers. Those working as managers usually assume responsibility for setting their own goals, and many also set goals for their organization. Not surprisingly, those working as professionals and in other occupations are less likely to take on these typical managerial responsibilities. Contrary to expectations however, it is the managers again who most often function as a source of professional knowledge in their organizations, either directly by providing advice to colleagues, or indirectly through network ties to others outside the organization. Professionals are significantly less likely to assume such a role, which may indicate that the work of professionals is more solitary, applying high levels of professional knowledge mainly in the execution of one's own work, and only to a lesser extent in facilitating the work of colleagues.

In the world of work, graduates are expected to be competent in a broad range of areas, comprising both field-specific and generic skills, as well as technical abilities in the areas of computer and internet usage. The competences that are most often required at a high to very high level in tertiary-level jobs held by graduates in the NCMS are the ability to use computers and the internet, the ability to use time efficiently, and the ability to work productively with others. Most graduates are highly competent in these areas, particularly with respect to the ability to use computers and the internet, but there are some shortages, of these and other competences, notably the mastery of one's own field or discipline and the ability to perform well under pressure. There are also competences for which a relatively large number of graduates report a surplus (a significantly higher own level than is required in their work). The main surpluses are found for the competences ability to write and speak in a foreign language, the willingness to question one's own and others' ideas, and the ability to use computers and the internet (the latter despite being the competence most often required at a high level: most graduates possess sufficient skills in this area for their work). Foreign language skills are notable in being relatively often in shortage as well as in surplus, which seems to indicate that – at least with respect to this competence – there is a misallocation of graduates across jobs.

There is a strong relation between certain characteristics of organizations and jobs on one hand and the required level and utilization of competences graduates on the other. The organizational characteristic that shows the strongest effects on the required level and utilization of competences is

the extent of innovation. However, the role actually played by graduates in introducing innovations at the job level has very little effect on the required level of any of the competences. This seems to suggest that innovative firms are extremely focused on deploying high-level competences, but do not thereby draw a strong distinction between those actually involved in introducing innovations and those who are not involved. However, innovation at the job level does have a much clearer effect on utilization of knowledge and skills in general, especially in the NCMS. It may be that graduates involved in introducing innovations mainly need to be creative, but do not need to be particularly adept in the competences included in the analyses. Working in a competitive environment provides a strong boost for the demand for graduates' competences, particularly management competences. Strangely, the effect of competition on the overall utilization of knowledge and skills is rather modest, and it is rather the extent to which such competition is based on quality rather than price that has the strongest effects in this respect. Both the managerial and the professional character of jobs have very strong effects on required competences and the utilization of knowledge and skills in general. Volatility of the work environment in the form of unstable demand and reorganizations is generally related to lower levels of utilization.

In the five countries that participated in the Hegesco project, the time spent on a range of knowledge management activities was asked of graduates. In general, graduates were most often engaged in social learning - involving various forms of social interaction and knowledge exchange with co-workers - and in data management. Much less time was spent on physical work, codification - involving the recording of work-related knowledge and experiences - and internalization. The latter is the activity that most closely resembles the prevailing learning type in higher education. Some clear effects of these knowledge management activities on both the demand for competences and the utilization of knowledge and skills were observed. Social learning is strongly related to required teamworking abilities in all countries. Physical work is strongly related to lower required levels of computer and internet skills. Codification emerges as an important factor related to demand for and utilization of competences in Turkey, showing strong effects on required computer and internet skills, time management skills and mastery of one's own field or discipline, as well as on the utilization of knowledge and skills in general. It is interesting that this activity shows such clear effects in Turkey, where the time spent on codification is much higher than in other countries. Data management is strongly associated with higher required levels of computer and internet skills in all countries, but in other respects seems to decrease rather than increase demand for high-level competences, also decrease the overall level of utilization of knowledge and skills. The data management activity that is most strongly associated with high levels of mastery of one's own field or discipline is internalization or information-process learning, and this activity also has a strong effect on overall utilization of knowledge and skills.

Although graduates are generally quite positive when it comes to the extent to which they feel higher education has prepared them for the world of work, it is striking that they were even more positive about the role higher education played in their personal development. Equally remarkable was the poor opinion most graduates have of higher education as a contributor to their entrepreneurial skills. This even applied to fields of study that cater heavily to the private sector, such as business and engineering studies. In general there was little difference between the NCMS and northern and southern European REFLEX countries in any of these assessments. Although a majority of graduates in most countries reported that they would choose the same study programme again at the same HE institute if they were in a position to choose again, this percentage is considerably lower in general in the NCMS than in the northern and southern European REFLEX countries. Especially Turkish graduates would often be reluctant to repeat their initial choice if they were free to choose again.

## View from higher education institutions and employers from five countries...

In addition to the large scale survey among graduates, a complementary survey was undertaken among 150 higher education institutions and employers' organisations in Lithuania, Poland, Hungary, Slovenia and Turkey. Below is a brief summary of this survey's results.

*What are the key competences needed by graduates to function well in the workplace and in society?* In general both HE institutions and employers agree that a rather diverse group of competences related to personal proficiency, in areas such as teamwork and decision making, are the most important for new graduates to function well in the work place. Also important are field specific knowledge and skills related to communication.

*Which actors are mainly responsible for competence development?* HE institutions consider themselves a far more important actor for generating graduates' key competences than employers. However, employers consider themselves to be equally important as HE institutions in generating competences.

*How well do graduates' competences measure up in the world of work?* More than three out of five employers reported that newly employed graduates were at least somewhat lacking in terms of field specific knowledge, while more than half of them find that graduates possess an adequate level of generic competences.

*What are the most important teaching and training modes in higher education and the labour market for the development of these competences?* Two out of three HE institutions consider lectures and classroom teaching to be the most suitable means of competence development in higher education. However, approximately half of them also consider active learning modes as additional key factors for generating competences in higher education. In the world of work, employers consider training, orientation/introductory programs and mentorship the best means of competence development. The overall impression during the field work was that it is very hard to draw parallels between competence development in the world of work and in education.

*What are the most important means of collaboration between employers and higher education institutions for competence development?* HE institutions and employers reported that practical training is the most important means of cooperation between these two spheres. Other means were reported to a lesser extent, but of these career days and career centres, program creation and research projects were reported most frequently.

*What are the quality control mechanisms that most strengthen the development of competences?* The most important means of quality control identified in the survey were graduate, employer and curricular evaluations.

*What path should higher education systems take to foster the development of competences?* The most important means reported by HE institutions for future competence development were curriculum development, improvement of financial systems and cooperation with employers. Employers also stressed a high relevance of practical work, a point that was less frequently reported by HE institutions.

We should stress that the scope of this survey was only sufficient for a very rough impression of the situation in these countries. We recommend that HE institutions should consider and further explore most of the issues raised in the context of their own field or discipline when managing quality control mechanisms and strategic planning related to the development of competences.

Countries also share much in common in terms of the main characteristics and experiences graduates reported with respect to their higher education programme and of their acquired competences. According to the assessment of graduates, higher education in Europe is quite demanding, with a broad focus but relatively little freedom offered to students to compose their own programme. Despite the increasing interest in more innovative methods in recent years, European higher education is at heart still rather traditional, with strong emphasis on classroom-style teaching. Nonetheless, graduates are more likely than not to have acquired some form of hands-on experience outside the classroom setting while in higher education. The most common form of experience is a work placement or internship, but other work experience is also often seen, and although experience abroad and positions held in student organizations are less prevalent, they are not uncommon in many countries. To be sure, there are some deep-rooted differences between higher education in different countries in terms of content, modes of teaching and learning, links to the labour market and such. Some countries are much more vocationally oriented than others, although these differences show surprisingly little relation with the extent to which employers are familiar with the content of higher education, which is quite low in almost all countries. Countries also differ strongly in the extent to which high education is mainly theoretical or more practical in its content. However, there is little or no systematic difference between the NCMS and REFLEX countries in any of these aspects.

When we look at study behavior however, it is striking that graduates in the NCMS report low average study hours compared to their northern and southern European peers. However, this is not related to any systematic difference in the way graduates perceive their own study motivation, with graduates in the NCMS being no more or less likely to report a willingness to work harder than necessary to achieve a passing grade. Graduates in different countries seem to have different ideas of what it means to study hard. In most countries students seem to be more extrinsically motivated than intrinsically motivated, with a high proportion of graduates in most countries reporting a strong orientation towards achieving high marks, but few indicating a willingness to work harder than necessary to achieve this.

Although certain aspects of higher education show significant effects on both competences and labour market outcomes, differences in these aspects across countries do not appear to account for country-level differences in outcomes. Demanding HE programmes appear to foster all kinds of competences, particularly mastery of one's own field or discipline. The reported level of mastery of one's own field or discipline was also significantly related to a vocational orientation of the study programme and the acquisition of relevant work experience during higher education, and depends more on practical than theoretical modes of teaching and learning. The latter finding suggests that disciplinary knowledge is more practical than academic in most countries. Group learning promotes both computer and teamworking skills.

Given the strong amount of attention paid in recent years to innovative educational methods, the effects of modes of teaching and learning on the selected competences are surprisingly modest. There was little evidence that innovative methods are any more or less effective in producing competences than more traditional methods. There was some evidence that the mode of assessment makes a difference for the acquisition of competences, with written assignments appearing to be somewhat more effective than multiple choice exams, but the effects were generally quite modest.

## Policy Implications

When it comes to policy implications we would like to distinguish the following main stakeholders: national governments, employers, higher education institutions and students.

### National governments

#### ***Strengthen links between higher education and the world of work***

We have found strong evidence that graduates of study programmes in higher education with strong links to the labour market enjoy a smoother transition to the world of work and greater success and satisfaction in their early career. Programmes that are strongly anchored in the world of work are also highly effective in enhancing the level of discipline-specific knowledge and skills of graduates.

#### ***Encourage the acquisition of relevant work experience during higher education***

Links between higher education and work are especially beneficial when graduates are able to acquire relevant work experience during higher education. This applies especially to work experience that is formally not part of the study programme, but that is nonetheless strongly related to the content of the study. Although less evidence was found that work experience that is part of the study programme – work placements, internships – produce competences and facilitating a smooth and successful transition to the world of work, this does not mean that such formal activities are not important. Because such activities are compulsory for many study programmes, it is difficult to distinguish their positive effects from the general labour market prospects of graduates who followed the programmes in question. By contrast, there is little evidence that spending time on non-relevant work during higher education is useful apart from providing students with additional income during study.

#### ***Create incentives to make higher education more demanding***

Demanding higher education programmes foster the development of all kinds of competences, particularly discipline-specific knowledge and skills. However, since graduates are rewarded more for the links that the programme has with the labour market and for its general level of academic prestige, higher education institutions often lack a direct incentive to make programmes more demanding, since this may discourage some potential students from enrolling. Consequently, there is a role for governments in creating an incentive structure that rewards institutions for excellence as well as volume.

### Employers

#### ***Employers should be aware of the large reserves of underutilized human capital at their disposal***

One out four graduates indicates that their knowledge and skills are not optimally used in their work. This seems particularly true for competences in the area of innovation and knowledge management. Especially in the private sector and in firms operating in an unstable market, employers do not make optimal use of the human capital at their disposal. Interestingly, organisations that strongly involved in innovation make better use of the potential of the graduates. Reaching the Lisbon goals may be more attainable if employers more fully exploit their highly educated employees' potential.

#### ***Employers should look for better signals of quality***

Our results show that graduating from programmes with strong links to the labour market and or a

high level of academic prestige is highly rewarding, even though these programs may not necessarily produce better graduates. It seems that employers heavily rely on such signals to reduce uncertainty. However, this strategy does not necessarily result in hiring the best graduate and there may be a need for more diversity in the hiring process. Although both governments (see above) and higher education institutions (see below) have a role to play in improving the relevance of signals of educational quality, employers can contribute by taking more note of such things as the demandingness of the study programme and the effort and motivation shown by graduates while in education. This not only has the immediate benefit of providing employers with better employees, but should also contribute to a tightening of the link between the prestige and reputation of higher education institutions on one hand and the excellence of the education they provide on the other.

## Higher education institutes

### ***Study programs should be more demanding***

One of the prime goals of higher education should be to optimally develop the talents of students. As 'time on task' is the best predictor of learning outcomes, this implies increasing the study load and creating a culture in which hard work and striving for excellence is valued and rewarded. Although a majority of graduates indicated that their programme was (highly) demanding, many graduates reported that this was not the case, especially in some countries. Although both governments and employers have a role to play in shoring up the quality of higher education, it is only the higher education institutions themselves that can implement the necessary changes to make higher education more challenging for students.

### ***Establishing more (or better) links with employers***

One of the aspects of higher education that is most valuable to graduates when they enter the world of work is the degree to which links exist between higher education and the world of work. At the same time, this appears to be only weakly related to the degree to which higher education is demanding. This implies that, while it is likely to be beneficial to graduates in the short term if the links between higher education and work are strengthened, in the longer term this is likely to be beneficial to all actors involved – employers, higher education institutes, graduates and ultimately the taxpayers who foot a large part of the bill – if such links are used to make higher education more challenging and fruitful, by involving employers in developing curricula that take account of the latest developments in the world of work, while not losing sight of the importance of imparting competences that will enhance the employability of graduates in the longer term.

### ***Don't overstate the important of modes of teaching and learning***

There is a tendency in education to think that knowledge in itself is not important anymore, as technological developments seem to render knowledge and skills obsolete soon after graduates have left higher education. Student-centred methods like project and problem based learning have often been touted as essential for the development of so-called key skills that are important in all areas of work. However, our results indicate that the precise modes of teaching and learning show surprisingly little relation with developing high levels of competence in most areas. Both traditional and more innovative forms of education appear to be similarly effective when it comes to competence development.

### ***Give credits for relevant work experience***

Work experience closely related to the field of study has a positive effect on the development of relevant skills. Higher education institutes could foster this by giving credit points to students who perform such

relevant work. This would encourage students to engage in relevant work instead of non-relevant work activities.

### ***Pay more attention to the development of entrepreneurial skills***

In most countries graduates are critical about HE program providing a good basis for starting to work or development of entrepreneurial skills. This should be taken seriously.

## **Students**

### ***Follow your interest and talent***

Although graduates from some fields of study (such as Humanities and Agriculture and veterinary) find it more difficult to enter the labour market and acquire a good job, this by no means indicates that these fields of study should be avoided. For all fields of study we find that two thirds (or more) of the graduates are satisfied with their job, and this also applies to the two fields mentioned (Humanities and Agriculture and veterinary studies). Moreover, we find only small differences between fields of study in the percentages of graduates who regret the choice of their program. In our view, students should primarily follow their own interest and talent when choosing a study program in higher education. Information about labour market prospects can of course play a secondary role in helping students choose between programmes they are equally interested in.

### ***Acquire relevant experience outside higher education***

Our findings show that acquiring work experience that is related to the study program is beneficial for the later labour outcomes. The same holds for holding a position in student or other voluntary organisations (e.g. chair, committee member) or spending time abroad for study and/or work. These experiences have a positive effect on the development of skills and serve as a signal to future employers. Although many students are engaged in non-relevant work to cover the costs of living, it is far better to focus on relevant work experience. Non-relevant work does not pay off in the long run, and – if it leads to an extension of the study duration - it might be better to rely on study loans.