

Training & Employment

n° 118 July-August 2015

Do young graduates with professional and vocational master's degrees regard themselves as competent to hold their jobs?

Professional and vocational courses requiring 5 years' post-secondary study are supposed to meet specific needs for competences in a given area of employment. Young graduates believe they have acquired the specific competences they think their employers require. In their view, the shortfall lies in their general competences. Is this a reason to question the increasingly vocational nature of university courses?

professionalisation
employment
2010 cohort
masters training
competences

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Initially adopted by corporate HR managers, competence-based learning has gradually spread throughout the education system. Since 2002, recognised competences have been listed in the National Register of Vocational Certifications (*Répertoire national des certifications professionnelles/RNCP*). This is supposed to enable companies to identify the learning objectives of the study programmes making up each degree course. For education managers, the competences are, in theory, preconditions for specifying course content, constituting a reference framework in the same way as the tasks or functions associated with the jobs students are being prepared to do. For their part, high school and university students are encouraged to prepare for their entry into employment throughout their time in education by turning their experiences to good account and putting their competences into practice. This approach, which has long been established in the business and engineering schools, is a more recent phenomenon in French universities. It reflects the trend towards the vocationalisation of higher education and a strengthening of the duty to prepare students for the world of work that was placed on universities by the 2007 Universities' Freedoms and Responsibilities Act (LRU-2007). As a result, competence-based learning seems

to have become an imperative for all actors in higher education. Asking former students to give their assessments, albeit subjective, of the levels of competence they acquired during their education compared with those required in their jobs is one way of investigating the relevance of this concept, now firmly established as an institutional norm.

From specifying competences to measuring them

Our survey population of graduates who had completed 5 years' post-secondary study (master's programmes and *grandes écoles*) was drawn from an experimental sample of the 2010 cohort (cf. box, p. 4). They were asked to evaluate the level of the competences they had acquired in the course of their initial education and the level required in the job they were doing in 2014. Even though the definitions of the competences are not entirely consistent, it is generally agreed that competences can be differentiated from know-how and knowledge by virtue of their operability in the work situation. In any discussion of competences, a distinction is often made between knowledge, know-how and interpersonal skills, which equate to ●●●

Methodology

The Competences Survey was carried out by Céreq between March and June 2014 among a specific sample of the experimental survey *Génération 2010*. It was conducted via the Internet. The sample consisted of 2,700 young people, most of whom had left education after 5 years' post-secondary study. The survey was mainly conducted by electronic means, with a number of reminder telephone calls towards the end. The studies presented here relate only to graduates of master's programmes and business and engineering schools who were in employment in 2014, i.e. a sample of 911 young people.

This post-survey exercise was supplemented by data from the experimental survey *Génération 2010*, which in particular provides details of the young people's labour market trajectories during the first three years of their working lives. This project was funded by LABEX SMS of Toulouse with a contribution from Céreq. It was carried out by teams from Céreq and two of its associated regional centres, CERTOP in Toulouse and IREDU in Dijon.

The levels of competences acquired in education and those required in jobs are captured by the self-evaluation method. Three main spheres of competences were identified in which each competence was evaluated on a scale of 0 to 5. Two main spheres are examined here: first, the specific or technical competences acquired during a course of study, linked to the degree specialism and constructed on the basis of the RNCP specification sheets and, second, general (or cross-cutting) competences, which are not specific to any particular qualification but rather to a level of educational attainment. Construction of this framework was based on European surveys (Reflex survey, developed in France by IREDU).

General competences

The construction of the general competences framework was inspired by European surveys, in particular the Reflex survey developed in France by the IREDU. These competences are not specific to any particular specialism but rather to a level of education. They were organised into four groups:

G1=> organisation of work and management of related activities (e.g. team working and successful management of interactions within work group).

G2=> organisation of research and processing of information (e.g. using ICTs).

G3=> communications (both written and oral, e.g., writing publications, reports, memos and documentation).

G4=> identifying and raising problems and defining the stages of a project (e.g. drawing up the study design and data gathering and analysis protocols).

For a detailed presentation of the competence framework and the full results, see: *Compétences acquises et requises des diplômés de bac+5*, J. Calmand, J.-F. Giret, P. Lemistre, B. Ménard Net.doc n°142, November 2015.

●●● academic competences, professional competences and behavioural or relational competences respectively.

Our focus here is on two types of competences, namely the specific or professional competences associated with the degree specialism and general or cross-cutting competences, which are not specific to a degree or specialism but rather to a level of education (cf. box on methodology).

Given the complexity of conducting an evaluation of competences in the workplace, it was decided to adopt the self-evaluation method. Consequently, this subjective evaluation provides only an approximation of the actual level of competences. Nevertheless, it will serve as a basis for comparing evaluations relating to education

and employment and measuring any possible gaps revealing oversufficiencies or deficiencies in competences.

General competences inadequate for the world of work

General competences were divided into 4 groups and evaluated on a scale of 0 to 5 (cf. Figure 1). They seem to have been acquired in initial education by a not insignificant share of the students, who reported average levels of between 2.5 and 3.5. Nevertheless, the declared levels are influenced by discipline and type of degree.

Thus the results for master's students differ from those for graduates of the *grandes écoles*. The latter report higher levels for their competences, which undoubtedly reflects a more positive attitude towards their knowledge and attainment. Among the master's degrees, the scientific specialisms are characterised by lower evaluations of the level of general competences their holders acquired in education, particularly for those grouped together under the heading 'Communications' (G3 in green on the figure opposite). There are also differences between master's degrees in the humanities and those in the social sciences, particularly for competences in the 'Organisation of research and processing of information' category (Figure 2, in orange), which were evaluated at lower levels by holders of master's degrees in law and political sciences. Finally, holders of master's degrees in the social sciences (psychology, sociology, etc.) differ from their counterparts in other disciplines in that they report higher average levels of competences acquired during their education.

Following on from these findings, analysis of the differences in evaluation between the levels of competence acquired in education and the levels required in employment reveals shortfalls in competences perceived by the graduates. Thus in the case of general competences, the required level is always evaluated, with only very few exceptions, at a higher level than that acquired in initial education (cf. Figure 2). This result calls into question certain ideas prevalent in the universities, which are said to put too much emphasis on academic competences to the detriment of so-called professional competences.

Indeed what emerges from the analysis – and this applies to all those surveyed – is a significant gap in the level required in employment in respect of competences relating to work organisation and activity management. Holders of master's degrees in scientific subjects, and more particularly in the science and technology specialisms, are those among whom the gaps are greatest. Conversely, the gaps between some acquired and

required competences are sometimes very small, or even positive, as in the case of the 'Identifying and raising problems' group of competences for holders of master's degrees in social sciences (mainly psychology and sociology). For this last group of competences, the gap is, fairly logically, low among holders of master's degrees in arts subjects, languages and humanities, where the level of acquired competences was already high. In other words, the more general the course of study was, the smaller the gap seems to be.

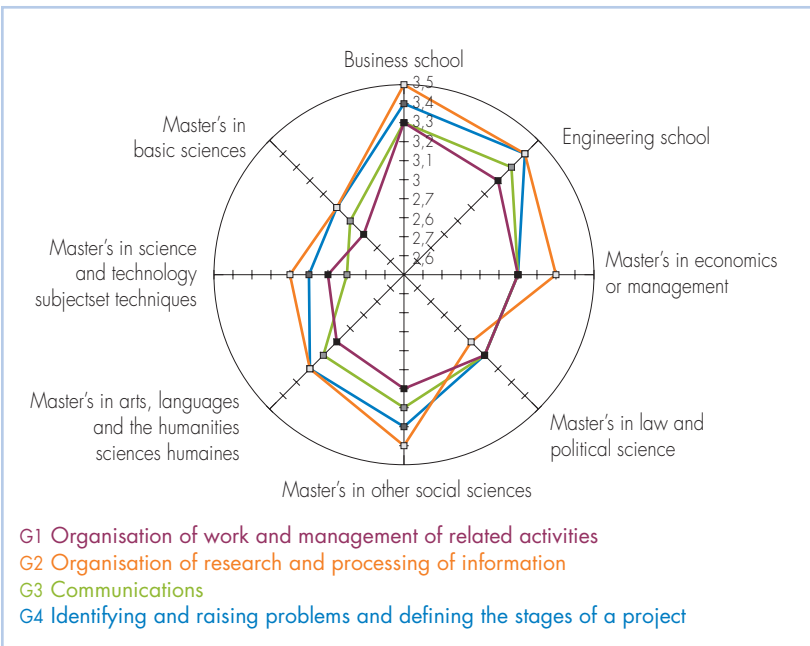
A satisfactory level of specific competences

In short, regardless of track and specialism, graduates with five years' post-secondary education seem to believe they have acquired a good level of general competences, even though they do not match up to what is expected of them in their jobs. The evaluations of specific competences turn out to be significantly lower, at between 1.5 and 2 on average on a scale of 0 to 5. Nevertheless, these competences cannot be described as inadequate because, unlike general competences, the level of specific competences acquired in education is more frequently equal to or greater than that perceived as required by employers. The only exceptions seem to be master's degrees in law, economics and management (cf. Table 1, page 4).

In the scientific specialisms, the level acquired in their education by engineering school graduates is always evaluated significantly more highly than that required by employers. This applies to all five major groups of competences (mathematics, chemistry, life and health sciences, earth, space and environmental sciences and computer science). For holders of master's degrees in science subjects, the trend observed for engineering school graduates is verified in mathematics and in life and health sciences. In chemistry and earth, space and environmental sciences, on the other hand, the acquired and required levels are close to each other and the gaps non-significant. Among holders of master's degrees in sciences, it is only in computer science that the competences acquired are perceived as significantly inadequate relative to employer's requirements.

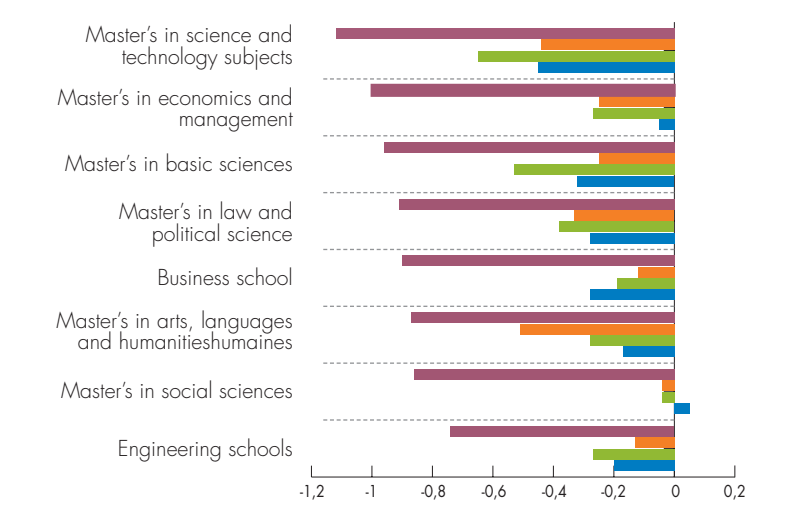
The results obtained in the fields of law, economics and management are markedly different. True, business school graduates report the highest average scores in three of the four major competence groups (management, economics and cross-cutting competences in the field) in respect of both their education and their jobs. Competence in law is an exception, since it is obviously found at a high level in master's degrees in law and political science. ●●●

Figure 1 • Average level of general competences acquired in education by track and specialism



Source: Céreq, questioning of an experimental sample drawn from the 2010 cohort
 Field: graduates having completed 5 years' post-secondary study in employment in the spring of 2014.
 Interpretation: On average, business school graduates put their level of competence in the 'Communications' group at 3.3 on a scale of 0 to 5.

Figure 2 • Average gap between the level of general competences acquired in education and the level required in employment



Source: Céreq, questioning of an experimental sample drawn from the 2010 cohort
 Field: graduates having completed 5 years' post-secondary study in employment in the spring of 2014.
 Interpretation: Business school graduates report an average shortfall of 0.3 in G3 competences (gap between competences acquired and those required).

●●● Nevertheless, overall, students who had completed master's programmes reported that the level of competence acquired during their course was inadequate in three competence groups, including those in law. Even in a breakdown by specialism, master's degrees in law and political sciences do not exhibit any significant positive difference.

As far as business school graduates are concerned, only in specific competences cutting across specialities do they report a significant shortfall in their jobs. The competences in question relate in particular to the administration and analysis of databases, strategic communications and leadership of a managerial team. This group of competences is also the one in which the gap between education and employment is widest for holders of master's degrees in law, economics and management.

Analysis of the differences between the subjective evaluations of the competences acquired and required reveals a shortfall in the

general competences acquired in training compared with the demands encountered in the workplace. On the other hand, for the specific competences listed in the National Register of Vocational Certifications, no shortfall was reported in the case of the competences specific to the degree specialism. Any possible gaps are confined to cross-cutting specific competences.

These results may be a cause for concern, at time when it is widely agreed that university courses need to be more vocational in nature in order to make them more specific. The analyses show that, from the point of view of the young graduates surveyed, there does not appear to be any major shortfall in the competences specific to the various disciplines. On the other hand, they also suggest that the common base of general competences and, to a lesser extent, the level of professional competences linked to certain specialisms could be strengthened in order to bring them into line with the level required by employers.

Further reading

Compétences acquises et requises des diplômés de bac+5, J. Calmand, J.-F. Giret, P. Lemistre, B. Ménard Net.doc n°142, novembre 2015.

« La capacité des adultes à maîtriser des informations écrites ou chiffrées », N. Jonas, *Insee Première*, 1467, 2013

La valorisation des compétences des diplômés de l'enseignement supérieur en Europe, C. Guégnard, J. Calmand, J.-F. Giret, J.-J. Paul, *Bref* n°257, 2008.

La méthode ETED : de l'analyse du travail aux référentiels d'emploi/métier, O. Liaroutzos, E. Sulzer (eds), Céreq, Relief, n°14, 2006.

Table 1 • Average gaps between the levels of specific competence acquired in education and those required in employment

Scientific disciplines	Science master's			Business schools		
	F	E	F - E	F	E	F - E
Mathematics	2,0	1,6	0,4***	2,1	1,6	0,5***
Chemistry	2,1	2,1	0,0	2,6	2,3	0,3***
Life, health and biological sciences	1,9	1,5	0,4***	2,1	1,4	0,7***
Earth, space and environmental sciences	1,2	1,1	0,1	1,6	1,2	0,4***
Computer science	2	2,3	-0,3***	2	1,8	0,2***
All specific competences	1,8	1,7	0,1	2,1	1,7	0,4***

Law, economics and management	Master's in law, economics and management			Business school		
	F	E	F-E	F	E	F-E
Management	1,7	1,8	-0,1***	2,5	2,2	0,3**
Economics - management	2,0	2,0	0,0	2,5	2,4	0,1
Law	1,6	1,7	-0,1***	1,5	1,5	0,0
Cross-cutting competences in these specialisms	1,9	2,4	-0,5***	2,4	2,7	-0,3***
All specific competences	1,8	2	-0,2***	2,2	2,2	0,0

E: level of competences acquired in education on a scale of 0 to 5.

J: level of competences required in job on a scale of 0 to 5.

E-J: gap between the level of competences acquired in education and that required in job.

Source : Céreq, questioning of an experimental sample drawn from the 2010 cohort.

Field: Nuage/Cloud: 2010 cohort; higher education; employment; vocationalisation; competences; 5 years' post-secondary study

Tests for differences between the two statistical distributions: * p<0.10, ** p<0.05, *** p<0.01