

Society needs and university teaching: is there a gap?

LOLA C. DUQUE

Carlos III University

MARIA PUJOL JOVER

Universitat Oberta de Catalunya

CARME RIERA PRUNERA

Universitat de Barcelona

lduque@emp.uc3m.es

This paper analyses the relationship between the skills developed at university and the skills labour market demands. Building on the SERVQUAL model ([1]), coming from the services literature, we adapt a gap model that compares businessmen and graduates perceptions of competences learned. The model compares the perceptions about learned competences during graduates' studies with the level of learning required at work, both from the businessmen perspective (gap A) and from the graduates perspective (gap B); then, the comparison between expectations of both (gap C) confirms that perceptions are similar from this angle; and finally, gap D shows a direct comparison between both perspectives. In order to test this model we developed questionnaires addressed to both groups of individuals, ensuring that the same sets of competences were directly comparable. Data was collected from graduates of Economics in a Spanish university and from businessmen in companies where these graduates had developed internships. The final sample consists of 182 businessmen and 238 graduates. We use the ANOVA test to evaluate the size of these four gaps. We analyse 30 competences grouped in

three sets: instrumental competences, interpersonal competences and professional competences. One of the most interesting findings is observed in Gap D, since this gap shows a direct assessment of perceptions between graduates' thought with an external evaluation from business people. Differences suggest that graduates seem to give low value to the knowledge, skills and capabilities learnt during their studies: 22 out of the 30 competences are rated statistically higher from the businessmen perspective. The analysis proposes a simple but informative tool for decision-making. We conclude the study by suggesting specific actions to directors of this university and opening up questions and extensions of this model.

Keywords: perceptions, gap analysis, instrumental competences, interpersonal competences, professional competences, ANOVA test.

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1. INTRODUCTION

The university has traditionally been perceived as the cradle of knowledge and intellectual society. However, some time ago, this perception started changing and the university is now facing new challenges, including the renovation of the mechanisms of interaction between higher education and business environment ([2]). University has a large amount of responsibility in the formation of human capital, of people with skills and competences enough to enable the construction of a high-level professional network ([3]). This raises an uncomfortable pressure between the advocates of scientific literacy, understood as fundamental knowledge, and those who prefer giving priority to learning professional skills, that are required in an increasingly higher degree by growing competitive labour market as [4] notes. The controversy inevitably starts when people wonder up to which extent university may have impoverished the conceptual training basis, so as to focus their efforts on employability. Some authors turn of the screw a little bit more, and even question the skill-training ability of university in those aspects directly related to the employability of graduates ([5]).

In the current environment, where society demands vision, entrepreneurship and generation of new ideas, the training of college students is crucial. The new competence-based learning model requires modern and valuable learning tools to allow students to develop skills and becoming active constructors of knowledge rather than just passive receivers of contents ([5b]). Reference [6] emphasizes the critical role of the university as a centre of knowledge and innovation, highlighting its profound importance in building a strong economy. Meanwhile, [7] emphasizes the need to enrich the interaction between university, business and government, so that the latter lays the foundations for the improvement of the skills and knowledge of graduates. In order to achieve this no effort should be spared by either the faculty or the university. On the contrary, a continuous and fluid cooperation between academia and industry should be fostered ([8], [9], [10], [11]) without forgetting the main actor: students. Thanks to them we can gather a great deal of information that will be helpful in introducing the necessary adjustments and improvements in higher education ([12]).

To achieve these objectives, the acquisition of a solid and high degree of competences is extremely important, since it facilitates the transition of students into the labour market ([13], [14], [15]). Reference [16] reinforces this idea, noting that the speed at which the graduates learn to develop their work is based on the level and type of skills acquired. Reference [17] added that the students, who learn to manage their own learning during their time at university, will better manage with their professional duties with initiative, creativity and the necessary degree of autonomy. Therefore, the skills a graduate needs to develop constitute the cornerstone of their training at university ([18]). In this sense internships, for instance, could be a relevant method in management and business training. Taking part of a real business environment allow students developing abilities and skills through experiential learning ([5b]).

Following this reasoning employers seem to seek employees with large background of skills related to personal competences. This upsurge rests on two foundations. The first one is related to the evolution of the society that translates into dramatic changes in the way of working due to the recent demand for people with different abilities. Consequently, former skills have no longer a preeminent role in the present employments. The second one is the type of work that labour market in developed countries offers today. This has certainly to do with the globalisation of our economy, where developed countries centre their efforts on more qualified jobs and also more abilities demanding.

There are also numerous studies showing the point of view of businessmen, both at a national level ([19], [20], [21]) and at international level ([22], [23], [24], [25]). These studies evaluate the satisfaction of employers with graduates, and show that these do not always meet the expectations of the former. This is usually not due to a lack of specific knowledge of the profession by the students, but to a lack of competencies, which sometimes turns out to be an insurmountable barrier when applying what they have learnt to a professional context. The report by reference [26] for the Australian administration emphasizes this idea, concluding that those graduates, which are rejected by the company, are the ones with lower skill levels. In fact often companies prefer to hire graduates rather than less qualified workers, just because the former are supposed to have better skills. Furthermore, within the field of economics, where our analysis takes place, it can be mentioned the study [27] undertaken at the Maastricht Faculty of Economics, showing that employers prefer graduates who demonstrate interpersonal and analytical skills, as well as their ability to improve in the long-run.

In this context, this paper aims at displaying that the rapprochement between academia and enterprises still has a long way to go, because there are strong conceptual and practical differences between what university teaches their students and what companies seek after and appreciate of the new graduates who start working for them. Based on a case study, we will analyse which the major discrepancies are between the training skills firms require to graduates and the skills and knowledge graduates acquired before entering the labour market. This analysis is based on subjective measures (perceptions); an approach that is increasingly being used in the higher education literature ([28]). More specifically, we deep the analysis into the four possible existing gaps between the two groups adapting the SERVQUAL model proposed by [1].

The rest of the paper is organized as follows. Next we describe the conceptual framework. Section 3 explains the methodology applied, then section 4 sets out our case of analysis detailing the main findings. Finally we conclude with a discussion of our results.

2. CONCEPTUAL FRAMEWORK

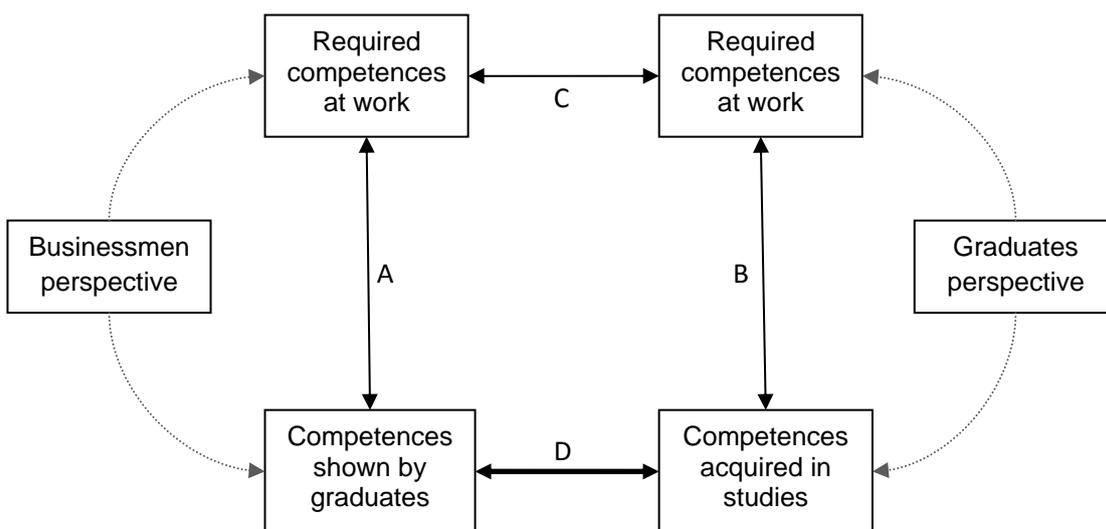
There exist different ways to perform an analysis of discrepancy criteria. For instance, [29] uses the importance-performance analysis (IPA) of [30] to compare how students and employers identify the importance of various competency items grouped into six focus areas and how

good they are implemented. Additionally, following [31] they analyse the mean weighted discrepancy score (MWDS) between what participants identify as “is” and as “should be”.

Another widely used methodology in the business sector in general, and in the service marketing literature in particular, is the gap analysis. This analysis is used to identify perception discrepancies (gaps) between customers and service providers although it can be exported to other disciplines such as educational policy and higher education service. The objective of such analysis is to identify the main discrepancies, their causes and then to develop policies, strategies and actions in order to reduce these differences.

In this study we adapt the SERVQUAL model ([1]) that considers 5 gaps in terms of expectations and perceptions between different actors involved in the service delivery to two main actors in the higher education service: graduates (direct customers of the service) and businessmen, in the job market side as Fig. 1 displays. The figure shows the conceptual model for this dyad of perspectives.

Figure 1. Framework for Gap analysis



Our framework considers 4 gaps. Gap A considers competences businessmen see in graduates, compared to what companies expect to find. Gap B captures what graduates think is the level of competences acquired during their studies, compared to the level companies expect to find. Gap C takes into account both perspectives and show the dyad analysis in terms of expectations (competences required at work). Finally, Gap D focuses on the dyad analysis in terms of the level of competences shown at work. This last gap is the most interesting one since it shows the direct assessment of competences’ perception.

3. METHODOLOGY

According to data from the Spanish National Institute of Statistics coming from the Labour Force Survey ([32]), the rate of activity in the economics and business sector in 2012 ranged between 63% and 70%, depending on the field of specialization. While these numbers do not stand out in the current socio-economic context, one might wonder why these graduates are less competitive than desirable, even though the job offers related to the economics and business sector have been the ones with the highest demand during the last years ([33]).

In this sense various Spanish universities are already focused on promoting specific skills training ([34], [35]). Besides a certainly large amount of teachers work on providing their colleagues tools to plan and evaluate educational activities designed for the development of their students skills ([36]).

Before describing the research methodology used to meet the objectives, it is worth remembering that the Organic Law 5/2002 of 19th June on Qualifications and Vocational Training defines competence as "the knowledge and skills that allow the exercise of a professional activity according to the demands of production and employment". There is no universally accepted classification of competencies ([37], [38]), although it is common to categorize them, as done in the Tuning Educational Structures in Europe project ([39]) into instrumental, interpersonal and systemic competences. This taxonomy meets the objective of covering the spectrum of capabilities needed throughout working life, with no intention of establishing any kind of hierarchy among them:

- Instrumental skills encompass basic aspects enabling the professional performance of workers, such as the capacity to analyse and summarise, computer skills, problem solving, etc.
- Interpersonal skills are related to communication skills, including aspects such as the ability to work in teams, or language proficiency both oral and written.
- Finally, systemic competencies refer to the integration of cognitive abilities and practical skills, and allow the person to adapt their knowledge to the professional environment; learning ability, creativity, self-demanding, among them.

Following this classification, in 2011 we conducted two parallel surveys so as to assess the importance that both groups under analysis –university students and employers– give to each of the generic skills and we ensure the same set of questions in both groups. The first survey was addressed to the two to five years of working experience alumni who had attended the Faculty of Economics and Business at the University of Barcelona. The second one was addressed to the companies included in the corporate database of the University who had hired in the last five years at least an employee with a degree in economics or business, as either a trainee student or in their staff. All data were kindly provided by the Teaching Department and the Department of External Relations.

The sampling design of the survey is summarized in [40]. The implementation and distribution of the questionnaires was conducted through specific online surveys software (Survey

Monkey). One hundred and eighty two (182) businessmen and 238 graduates answered the questionnaire, which under the assumption of maximum indeterminacy ($p=q=0.5$), and with a 95% confidence level, allows for a 6% error and a 4.5% error in the estimates respectively. It was assumed that individuals who answered come from a representative sample of their corresponding groups. Notwithstanding, there may be a non-response bias, as usual in most survey studies.

The questionnaire assessed each competence through a quantitative 1-6 Likert scale from lowest to highest achievement. Businessmen were asked to rate both the required level of each competence for graduates to work in their firms, and the level they had when they started working, that is, the level acquired by the graduates at university. Meanwhile, students were asked to rate the presence of each competence in their curriculum, as well as the importance of each competence they perceived the employer asked for.

The gap analysis was performed using the program SPSS Statistics 21. We use the ANOVA test to evaluate the gaps existing between businessmen and graduates perceptions, and also to capture the opinion of each group with respect to performance versus expectations (significance level was set to 0.05 and variances between the two groups were assumed not to be equal).

In line with marketing literature recommendations ([41], [42], [43], [44]) before applying a measurement scale gauging a latent construct it is necessary for it to fulfil all requirements with respect to reliability, dimensionality and validity, among others ([45]). We used consistency analysis before grouping the competences by set. Cronbach alphas come from the corresponding SPSS test.

4. RESULTS

The results are divided into four categories, following the gap analysed on the perceptions of businessmen and graduates, required competences at work and acquired vs. shown competences (tab. 1). For each discrepancy set we detail the most relevant outcomes according to the set of competences studied (tab. 2). In all cases the ANOVA test confirms that differences are statistically significant at 5% level.

4.1. Businessmen perceptions (Gap A)

Columns 5 and 6 of tab. 1 show the difference between the required competences for the job and what businessmen perceive from graduates' current level of competences. All but one of the 30 competences was not significantly different: "Economic vocabulary use and reasoning", which means that from businessmen perspective, graduates have effectively achieved the required level. For the rest of the 29 competences, businessmen believe that a larger development of these competences is needed.

From each set of competences we rank differences by size of the gap. From the instrumental variables "problem solving" (1.2) is the most relevant competence to work on, which is followed by "organization and planning" and "autonomous work ability" (both with 0.9).

Moving to interpersonal competences, the most relevant competence to focus on is the “ability to work under pressure”, the next being “negotiating skills”. Finally, in the professional set of competences, there are various competences that deserve attention. First “initiative and entrepreneurship” followed by “commitment and decision-making”, then “self-demanding and motivation for success”, and finally, “adaptation to new situations” and “capacity to obtain conclusions and results interpretation”.

There is a unique competence that businessmen perceived as over-acquired by graduates, namely “appreciation of multiculturalism”.

4.2. Graduates’ perceptions (Gap B)

Columns 7 and 8 of tab. 1 display the differences perceived by graduates between what they think is the level of competences required at job and the level achieved by the time they studied at university. We find again that there is a long way to go, since in just 3 of the 30 competences students there were no significant differences. In other words, for “basic general knowledge”, “specific knowledge related to the studies” and “thinking and use of economic vocabulary” the graduates’ perceive they have obtained the level required at their workplace. Looking at the remaining competences’ differences, 27 out of 30, we observe that all gaps are positive and considerably large.

The width of these discrepancies captured our attention and led us up to think whether graduates are being too demanding in their self-assessment, or if there exist a problem dealing with the importance given to these competences throughout their studies. Gap C will allow us to go deeper into the most likely reason for this undervaluation.

Arranging by size of the perceived differences we find that in the case of instrumental variables, “knowledge of a foreign language”, with a discrepancy of 2.5, is the competence graduates assess with the largest gap. This competence is closely followed by “software skills”, with a 2.3 gap. Rather below are located the “capacity to apply knowledge to practice” (1.7) and “problem solving” (1.6). With respect to interpersonal competences group, the most relevant skill students think more work is needed throughout the studies is “negotiating skills”, with a difference of 1.9, next the “capacity to work under pressure” (1.8), “team work” (1.7), and “leadership” (1.5). Finally, in the professional set of competences, we found four with the same discrepancy, 1.6, namely “adaptation to new situations”, “initiative and entrepreneurship”, “responsibility and decision-making”, and “ability to make technical reports”. In a second stage we find “creativity” and “self-demand and success concern”, both with a 1.3 disparity.

4.3. Comparing perceptions of “required competences” at work (Gap C)

Columns 9 and 10 of tab. 1 illustrate the differences between businessmen and graduates perceptions’ skills requirement. This comparison serves as a measurement checkout. Note that this comparison shows the lowest disparities presented in the whole analysis meaning that both groups are quite close in their perceptions. More specifically, 19 out of 30 competences are statistically equal and the rest exhibit low discrepancies. In contrast to what we previously

observed in gaps A and B, and what we will see in gap D, where differences behave homogeneously regarding the sign, in gap C it moves from positive to negative both within and between sets of competences. It is worth mentioning that the sign remains always positive within the statistically significant changes in the professional set. This means that graduates perceive professional skills as being required in a lower level than they really have them. However the eleven statistical differences are not higher than 0.4 points, with the exception of “business ethics”.

In this case, the gap jumps to a positive 1.1, meaning that graduates’ perception is lower than businessmen; consequently it might be interesting to make further research into this aspect. In any case, both the relatively low values of the differences and the fact that only for one third of them the discrepancies are significant in favour of the graduates smooth the negative perception these have of businessmen being more demanding than they really are.

Table 1: Businessmen and graduates perceptions assessment mean and gaps observed.

Competences ^{AK}	Businessmen		Graduates		GAP A Businessmen		GAP B Graduates		GAP C Req. Buss. – Grad.		GAP D Ob. Buss. – Grad.	
	Req.	Obs.	Req.	Obt.	Diff.	ANOVA	Diff.	ANOVA	Diff.	ANOVA	Diff.	ANOVA
Instrumental												
1 Analysis and synthesis	4.8	4.1	4.9	4.1	0.7	*	0.8	*	-0.1	n.s.	0.0	n.s.
2 Organization and planning	5.0	4.1	5.2	4.1	0.9	*	1.1	*	-0.2	*	0.0	n.s.
3 General basic knowledge	4.5	4.2	4.2	4.2	0.3	*	0.0	n.s.	0.3	*	0.0	n.s.
4 Specific degree knowledge	4.4	4.2	4.0	4.0	0.2	*	0.0	n.s.	0.4	*	0.2	*
5 Foreign language knowledge	4.2	3.7	4.4	1.9	0.5	*	2.5	*	-0.2	n.s.	1.8	*
6 Computer skills	4.8	4.2	5.1	2.8	0.6	*	2.3	*	-0.3	*	1.5	*
7 Knowledge application into practice	4.8	4.1	4.8	3.1	0.7	*	1.7	*	0.0	n.s.	1.0	*
8 Problem solving	5.2	4.0	5.0	3.4	1.2	*	1.6	*	0.1	n.s.	0.5	*
9 Information management	5.0	4.4	4.8	3.8	0.6	*	1.0	*	0.2	n.s.	0.6	*
10 Autonomous work ability	4.9	4.0	4.9	4.2	0.9	*	0.7	*	-0.1	n.s.	-0.2	n.s.
Interpersonal												
1 Catalan and/or Spanish oral communication	5.1	4.8	5.1	3.9	0.3	*	1.2	*	-0.1	n.s.	0.9	*
2 Catalan and/or Spanish written communication	5.1	4.6	5.0	4.1	0.5	*	0.9	*	0.0	n.s.	0.5	*
3 Critical and self-critical ability	4.6	3.8	4.4	3.7	0.8	*	0.7	*	0.1	n.s.	0.1	n.s.
4 Team work	5.1	4.4	5.0	3.3	0.7	*	1.7	*	0.1	n.s.	1.1	*
5 Leadership	4.2	3.6	4.4	2.9	0.6	*	1.5	*	-0.2	*	0.7	*
6 Ability to work under pressure	4.9	3.7	5.3	3.5	1.2	*	1.8	*	-0.4	*	0.2	n.s.
7 Ability to pass on knowledge	4.5	3.8	4.5	3.4	0.7	*	1.1	*	0.0	n.s.	0.4	*
8 Negotiating skills	4.5	3.6	4.6	2.7	0.9	*	1.9	*	-0.2	n.s.	0.8	*
9 Appreciation of multiculturalism	4.1	4.2	3.6	3.1	-0.1	*	0.5	*	0.5	*	1.1	*
10 Ability to impose authority	3.6	3.2	3.8	2.5	0.4	*	1.3	*	-0.2	n.s.	0.8	*

	Businessmen		Graduates		GAP A Businessmen		GAP B Graduates		GAP C Req. Buss. – Grad.		GAP D Ob. Buss. – Grad.	
Professional / Systemic												
1 Ability to adapt to new situations	5.2	4.3	5.2	3.6	0.9	*	1.6	*	0.0	n.s.	0.8	*
2 Capacity to learn	5.4	4.8	5.2	4.3	0.6	*	0.9	*	0.2	*	0.5	*
3 Creativity	4.6	3.9	4.3	3.0	0.7	*	1.3	*	0.3	*	0.9	*
4 Initiative and entrepreneurship	5.0	3.9	4.7	3.1	1.1	*	1.6	*	0.2	*	0.8	*
5 Self-demand & success concern	5.0	4.0	4.9	3.6	1.0	*	1.3	*	0.2	n.s.	0.5	*
6 Responsibility and decision making	4.9	3.8	5.0	3.4	1.1	*	1.6	*	-0.2	n.s.	0.3	*
7 Economic vocabulary use and reasoning	4.2	4.0	4.3	4.1	0.2	n.s.	0.2	n.s.	-0.1	n.s.	-0.1	n.s.
8 Conclude and interpret results	4.9	4.0	5.0	4.0	0.9	*	1.0	*	-0.1	n.s.	0.0	n.s.
9 Ability to make technical reports	4.5	3.8	4.6	3.0	0.7	*	1.6	*	-0.1	n.s.	0.8	*
10 Business ethics	5.0	4.4	3.9	3.0	0.6	*	0.9	*	1.1	*	1.4	*

*Competence names are taken from <http://www.kent.ac.uk/careers/sk/skillsmenu.htm>

Table 2: Discrepancies rapprochement: Instrumental, interpersonal and professional competences.

	Diff. < 0	0 ≤ Diff. < 0.5	0.5 ≤ Diff. < 1	1 ≤ Diff. < 2	Diff. ≥ 2
Instrumental					
GAP A		3 General basic knowledge 4 Specific degree knowledge	1 Analysis and synthesis 2 Organization and planning 5 Foreign language knowled. 6 Computer skills 7 Knowledge app. practice 9 Information management 10 Autonomous work ability	8 Problem solving	
GAP B			1 Analysis and synthesis 7 Knowledge app. practice 10 Autonomous work ability	2 Organization and planning 8 Problem solving 9 Information management	5 Foreign language knowled. 6 Computer skills
GAP C	2 Organization and planning 6 Computer skills		3 General basic knowledge 4 Specific degree knowledge		
GAP D		4 Specific degree knowledge	8 Problem solving 9 Information management	5 Foreign language knowled. 6 Computer skills 7 Knowledge app. practice	
Interpersonal					
GAP A	9 App. of multiculturalism	1 Cat/Sp. oral communic. 10 Ability to impose authority	2 Cat/Sp. written communic. 3 Critical and self-crit. ability 4 Team work 5 Leadership	6 Ab. to work under pressure	

	Diff. < 0	0 ≤ Diff. < 0.5	0.5 ≤ Diff. < 1	1 ≤ Diff. < 2	Diff. ≥ 2
			7 Ab.to pass on knowledge 8 Negotiating skills		
GAP B			2 Cat/Sp. written communic. 3 Critical and self-crit. ability 9 App. of multiculturalism	1 Cat/Sp. oral communic. 4 Team work 5 Leadership 6 Ab. to work under pressure 7 Ab.to pass on knowledge 8 Negotiating skills 10 Ability to impose authority	
GAP C	5 Leadership 6 Ab. to work under pressure		9 App. of multiculturalism		
GAP D		7 Ab.to pass on knowledge	1 Cat/Sp. oral communic. 2 Cat/Sp. written communic. 5 Leadership 8 Negotiating skills 10 Ability to impose authority	4 Team work 9 App. of multiculturalism	

Table 2 (cont.): Discrepancies rapprochement: Instrumental, interpersonal and professional competences.

	Diff. < 0	0 ≤ Diff. < 0.5	0.5 ≤ Diff. < 1	1 ≤ Diff. < 2	Diff. ≥ 2
Professional					
GAP A			1 Ab. to adapt to new sit'ns 2 Capacity to learn 3 Creativity 8 Conc. and interpret results 9 Ab. to make tech. reports 10 Business ethics	4 Initiative and entrepreneur. 5 Self-dd & success concern 6 Resp. and decision making	
GAP B			2 Capacity to learn 10 Business ethics	1 Ab. to adapt to new sit'ns 3 Creativity 4 Initiative and entrepreneur. 5 Self-dd & success concern 6 Resp. and decision making 8 Conc. and interpret results 9 Ab. to make tech. reports	
GAP C		2 Capacity to learn 3 Creativity 4 Initiative and entrepreneur.		10 Business ethics	
GAP D		6 Resp. and decision making	1 Ab. to adapt to new sit'ns 2 Capacity to learn 3 Creativity 4 Initiative and entrepreneur. 5 Self-dd & success concern 9 Ab. to make tech. reports	10 Business ethics	

4.4. Comparing perceptions of both perspectives: the level of graduates' competences businessmen see and the level of competences students perceive they have obtained (Gap D)

These differences are the most interesting ones, since they show us a direct assessment of the perceptions between graduates' point of view compared to an external evaluation from business people. To check the initial reliability of scales used in our analysis we calculated the Cronbach alpha values ([46], [47]). This statistic measures the internal consistency of the elements included into the scales. A scale whose associated Cronbach alpha is higher than 0.7 is considered as reliable ([47], [48]). However, this criterion could be weakened down to 0.6 according to reference [49] or strengthened up to 0.8 following [50]. Tab. 3 presents the indices we built for each of the competences' sets. According to the Cronbach alpha values obtained our scales are highly consistent since all of them are above 0.80.

As we can see, the evaluation provided by businessmen is close to 4 points for all the competences in a 1-6 points scale; however, the graduates' indices are between 3.3 and 3.5 in the same scale. These values (statistically significant at 5% level) reinforce the idea we outlined before: graduates seem to give lower value to knowledge, skills and capabilities learnt throughout their studies.

Table 3: Competence Index and Cronbach alpha of skill sets

Competences	Index based on mean of competences			Cronbach alpha	
	Businessmen	Graduates	Diff.	Businessmen	Graduates
Instrumental	4.08	3.55	*	0.89	0.83
Interpersonal	3.97	3.33	*	0.86	0.91
Professional/Systemic	4.09	3.51	*	0.91	0.88

Finally, the last two columns of tab. 1 outline the differences in perceptions corresponding to the level of achievement as seen by businessmen and graduates. Some non-significant differences can be found in each of the 3 sets of competences, meaning that perceptions coming from the two groups are equal. The competences, where both businessmen and graduates agree in terms of achievement are the following ones: "analysis and synthesis", "organizational and planning capacity", "basic general knowledge" and "autonomous work" (instrumental competences); "critical and self-critical ability" and "capacity to work under pressure" (interpersonal competences); "economic vocabulary use and reasoning", and "capacity to conclude and interpret results" (professional competences). In any other case the differences are significant and tend to be always positive, meaning that graduates value their training and knowledge acquisition in a lower level than businessmen do.

Looking at the significant differences, in the instrumental competences set we observe the highest differences correspond to "foreign language knowledge" (1.8), followed by "software skills" (1.5) and "capacity to apply knowledge into practice" (1). For the interpersonal set of competences, the most important differences are located on "team work" and "appreciation of multiculturalism" (both with 1.1), followed by "oral communication in Catalan/Spanish"

(0.9) and by “negotiating skills” and “ability to impose authority” (both with 0.8). Finally, in the professional competences set, the main differences are found in “business ethics” (1.4 points), “creativity” (0.9 points) and “adaptation to new situations”, “initiative and entrepreneurship”, and “ability to make technical reports” (all with 0.8 points difference).

4.5. Four Gaps comparison

It is worth comparing the four gaps together and deepening into the discrepancies observed between the perceptions of businessmen and graduates (tab. 2). Such analysis has been undertaken by competences’ set in order to favour comprehensibility. Additionally, we have grouped all skills and abilities according to the magnitude of the discrepancy they presented in each gap into five categories: negative, low (from 0 to 0.5), medium (from 0.5 to 1), high (from 1 to 2) and very high (larger than 2).

According to that we observe that in gap C four out of the 30 competences are better perceived by the students’ perspective (the negative and significant differences in column 9). These competences are: “computer skills”, which ranges from a negative to a higher than 2 disparity, “organization and planning”, “leadership” and “work under pressure”. However the size is not very prominent. This happens too with the competences with a positive difference, with the exception of “business ethics”. Moving to gap D, we see that all significant discrepancies are positive, meaning that businessmen have always a better perception than students on the acquired competences.

With reference to instrumental abilities, “computer skills” not only has the higher spread difference but this is also the unique relevant in the four gaps. Competences such as “organization and planning”, “specific degree knowledge”, “foreign language”, “knowledge application into practice”, “problem solving” and “information management” have significant discrepancies in three gaps.

According to interpersonal competences, “leadership” and “multiculturalism” differences appear in the four gaps. The disparities of other skills namely “Catalan and Spanish oral and written communication”, “teamwork”, “work under pressure”, “pass on knowledge”, “negotiating skills” and “impose authority” are present on three of them.

Finally, relative to professional skills, “capacity to learn”, “creativity”, “initiative and entrepreneurship” and “ethics” discrepancies are recorded in the four gaps as significant. In three of the gaps we find the disparities associated to “ability to adapt to new situations”, “self-demand and success concern”, “responsibility and decision making” and “make technical reports”.

5. DISCUSSION

This paper analyses the relationship between the skills developed at university and the skills labour market demands. Significant differences in the perception of which are the most important skills for a good development of the professional carrier of a graduate student are found depending on which group, graduates or businessmen, make the assessment. At a first

glance these differences between firms and graduates seem to tell us that graduates tend not to learn a certain amount of knowledge that apparently would be useful in the immediate future so as to successfully join the labour market. The second interesting interpretation coming from the results is a certain lack of self-esteem and self-confidence students have in their abilities and knowledge. This could be one of the aspects to reinforce in their studies, as well as the ones strictly related to practical contents.

Going into more detail, employers assert the demand for a larger effort to strengthen both individual and collective skills, as well as a more practically oriented learning, where competences such as the planning, problem-solving or initiative, among others, gain more prominence. The graduates meanwhile, seem to have a more traditional view of training, not seeking such an immediate practical efficiency at the cost of renouncing to strict knowledge and cognitive progress. Notwithstanding the figures coming from gap C analysis suggest that businessmen and graduates have the same perception about the abilities, skills and knowledge needed at the marketplace in broad outline.

In this sense, following ([29]), we should say that university curricula should prepare students for labour market providing them the knowledge, skills, abilities and behaviours that cover not only firms but also societal needs. This means that revision of university curricula must be in consonance with society needs and challenges, promoting internships and other types of employment before graduation aimed at enhancing the development of competences related to people such as leadership, communication and management skills.

Graduates have a negative biased perception of the level of computer skills, organization and planning, leadership and work under pressure requirements at the workplace, meaning that they think the level of abilities required is higher than it really is. Businessmen believe that graduates have achieved a stronger level of multiculturalism than they ask for. Graduates also seem to consider that the curriculum did not allow them to acquire most of the competences in an appropriate level. Computer skills ability and foreign language knowledge rank at the top followed by the vast majority of interpersonal and professional. This leads to the conclusion that they find interpersonal and professional abilities more difficult to achieve than the instrumental ones.

In this line, following the list of key competences to focus on (based on we tab. 2), in order to reduce the biggest disparities, according to the presence of the abilities discrepancies obtained in three or four of the gaps studied, we believe that university should specially concentrate its efforts on boosting the competences whose differences are present in most of the gaps.

However, we should wonder what kind of labour market we want to have, what kind of economy will lead us back again to a stable growth path and decide which kind of college education should our students be taught accordingly. Close collaboration between business and academia would be desirable in order for our students to receive the best possible training, which could certainly help improving the productivity of our economy. Nevertheless, this requires, first, an effort undertaken by academics to change some of their teaching methods and also an effort undertaken by the university so as to create an environment where the use of methodologies closer to what the labour market requires may be possible.

Notwithstanding, businessmen should also be required to think about which may be the best profile of worker as well as to make their complaints and demands more explicit and doing it with a long-term vision.

On the other hand the question that arises is whether this alleged intellectual training that university provides to students and should help them to successfully cope with specific situations actually gives the expected results. It could also be the case that what fails is the translation from "how to think well" to "how to do well". In any case, we might wonder whether the foundations are too weak to support such a solid building or not. And contrarily, will a building with shallow foundations be able to bear the burden of the whole block for a long time? What will happen when the conditions turn to be unfavourable?

There are certainly many arguments in favour of the fact that the training students receive is largely compatible with the immediate professional requirements. However, if there is something that should be clearly understood, that is the following: in the debate on how to improve the orientation of education towards demand, we should keep nothing but a long-term vision. It cannot be any type of demand, but one based on maximum intellectual demand criteria, built upon an efficient and competitive production model.

Therefore, the main recommendation we should do would be to seek after a rapprochement between academia and businessmen, where employers can express the deficiencies they find in new graduates and on the other hand, academics expose the long-term training needs they believe a graduate will be required to end up being a highly qualified professional. It is undoubtedly important to enter the labour market with some specific skills that will improve with experience and especially with high reasoning ability and effort. And this requires having previously acquired a general long-term vision upon how to build more specific knowledge.

In short, we believe that what is revealed and where university in particular and society in general should turn their steps towards is the boosting of all those skills and abilities that will help future workers to adapt to new situations, improving their ability of learning, taking on responsibilities and being able to make decisions. This will require that university continues to advance in the proposal and implementation of teaching methods aimed at increasing the weight given to practical lectures centred on the implementation of discussion, communication and negotiation activities and to foster an active role of students. This work also requires some institutional support, meaning that it should provide a favourable context for the achievement of these objectives, modifying, when necessary, curricula and methodologies encouraging more active and demanding learning methods.

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