

# Congruence Of Educational Outcomes With Labour Market Demand From Higher Education Graduates' Perspective

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## Abstract

This paper aims to emphasize the impact of the educational process on graduates' transition into the labour market. It is explored the matching/mismatching between skills supply and skills demand for higher education graduates entering the labour market. An online graduate survey was conducted exhaustively to bachelor's degree graduates at a large western Romanian university, returning 856 valid responses. The study had a longitudinal character, being applied in two stages, 6 months and 12 months after graduation. Analysing the matching of educational outcomes with labour market demand turns out that only theoretical skills were provided to students above the labour market demand. Also, the results highlight that the graduates' job satisfaction increases proportionally to the degree of congruence between the studies completed and the job held.

**Keywords:** educational outcomes, labour market demand, skills matching, graduates' career path, job satisfaction, higher education

**JEL Classification:** I20, I21, I23, J20, J23, J24

## Introduction

The skills possessed by the current or future workforce are the focus of debates related to the sustainability of the labour market in the context of globalisation, demographic imbalance, and the accelerated pace of changes brought by digitisation, robotisation and artificial intelligence in all economic sectors within the new wave of industrialisation, Industry 4.0. All these disruptive

developments impact the number and quality of jobs and the skills workers will need to perform in an increasingly competitive landscape. The introduction of new technologies changes the nature of work, affecting both the value and content of the required skills, generating a mismatch between the supply and demand of skills, and leading to imbalances and inequalities (e.g., wages) in the labour market.

These changes have raised several concerns about the accuracy of the matching between higher education and graduate employment, such as (1) identifying the most relevant competencies for the professional success of graduates; (2) whether and how these competencies are generated by higher education systems (García-Aracil and Van der Velden, 2008).

The growing importance of investment in education, both for the individual and for society as a whole - with positive correlations up to the level of GDP (Valero and Van Reenen, 2019) - is closely related to the concept of human capital. The relevance of this bond was emphasized decades ago by Nobel laureates in economics such as Gary S. Becker and Theodore Schultz. Emphasizing both at the micro- and macroeconomic level the need for the development and use of human capital, implicitly led to monitoring the stock of human capital and its efficient use (human capital can increase over time if used properly). This highlights the importance of the "right man in the right place" on the labour market, but also the fact that not using human capital leads to its drop or loss over time (World Economic Forum, 2017). But, to what extent is it possible to match the stock of human capital (knowledge, skills, personal skills or acquired through education) with the needs of the labour market through higher education institutions is the question that led us to look for answers precisely among those who have this type of capital, the graduates of these institutions. This approach considered that it is graduates who face difficulties accessing the first job after graduation, trying to convince potential employers that they possess the right human capital. As new entrants to the labour market, they have no other means to convince employers than their own personality and degree attesting to the level of completed studies with the few references to the skills possessed.

Thus, the present study seeks to answer the following questions: *Are the skills acquired in school congruent with those required on the labour market?; How satisfied are graduates with their university experience?*

## The concept of competence and the labour market

Stoof, Martens, Van Merrienboer and Bastiaens (2002) underlined that, over time, competence has proven to be a frequently used term both in an organizational context for the development of human resources and in educational institutions for the development of new educational models, but difficult to define due to the lack of a theoretical framework. In the last decades, the concept has become predominantly influential in the organizational environment, especially in the sphere of recruitment and selection of new employees. At the same time, in education, the term appeared more as a form of response to the needs of employers. Clarifying the competence concept is necessary to enable human resource developers and educators to provide useful skills to individuals socially and professionally. Thus, Le Deist and Winterton (2005) point out that if competence is important, it follows that its meaning is also important, because without a shared understanding there is little chance of integration, alignment, or mobility in practice. However, despite the central role of competence, there is considerable confusion surrounding this term.

Hager and Gonczi (1996) see competence as a relationship between people's skills or capabilities and the satisfactory performance of corresponding tasks. They believe that exclusively task- or attribute-focused approaches ignore the essentially relational nature of competence through the two key ingredients.

ESCO (European Skills, Competencies, Qualifications and Occupations) and EQF (European Qualifications Framework) apply a common definition to the concepts of skill and competence, describing them as follows (European Parliament Council, 2008):

- Ability is the capacity to apply knowledge and use know-how to accomplish tasks and solve problems. It can be cognitive, involving the use of logical, intuitive and creative thinking, or practical, involving manual dexterity and the use of methods, tools and instruments.
- Competence means the proven ability to use personal, social or/and methodological knowledge, skills and abilities in work or study situations and for personal and professional development. Competence is described in terms of responsibility and autonomy.

In the *Recommendation of the Council of the European Union on key competencies for lifelong learning* the concept of competence is defined as a combination of knowledge, skills and attitudes appropriate to the context (Council of the European Union, 2018), where:

- knowledge comprises facts and figures, concepts, ideas and theories that are already established and support the understanding of a certain field or topic;
- skills are defined as the skill and ability to carry out processes/actions and use existing knowledge to achieve results;
- attitudes describe the disposition and thought patterns used to act or react to ideas, people or situations.

On the other hand, beyond the confusion over the definition of these concepts, at the European level, many employers claim that they are unable to find workers having the necessary skills to operate with the new tools and technologies, while many graduates claim that they cannot find jobs according to their qualifications (OECD, 2016, 2017, 2018a).

For Romania, the highlighted imbalances (OECD, 2018b) show as follows: an intense deficit of quantitative, verbal and argumentation skills; gaps in the skills areas of systems assessment and systems analysis are also high and stronger than the OECD average; Romania also faces a deficit in most areas of knowledge, especially in mathematical knowledge and computers and electronics, both of which have a deficit higher than the OECD average.

Over the time, a question emerged as to whether, at the policy level, education in general and higher education, in particular, should at least try to engage with the labour market. For example, Chomsky (1988 apud West, 2000) argues that only the type of work that allows the expression of individuality should be the object of educational attention. Others, such as Barnett (1994 apud West, 2000), see the job training mission as a threat to the critical position towards knowledge and society that universities have so far represented. Others, again from an employment perspective, have expressed doubt about what education can provide as meaningful preparation for work, arguing that "real world" experience is all that really matters (West, 2000).

The relationship between higher education and the labour market has traditionally been a tight one, albeit in sometimes intangible ways. Universities traditionally helped the flow of skilled workers, professionals, and managers. Moreover, this relationship was marked by a steady flow of highly skilled young people into well-paid and rewarding jobs. Higher education has

traditionally been perceived as providing a springboard from which graduates could successfully integrate into economic life and serve the economy effectively. Tomlinson (2008) argues that the link between higher education and the labour market is largely based on three main dimensions: the knowledge and skills that HE transfers to graduates and which are then reflected in the labour market; legitimizing credentials/diplomas that serve as a signal for employers and allow them to "filter" future potential employees; and the enrichment of personal and cultural attributes or what might be seen as *personality*.

## Matching/mismatching of the skills supply and skills demand

The "matching" concept (congruence, compatibility) appears defined in the literature (Mortensen, 1982) as the process by which people and/or objects are combined to form distinct entities with a common purpose that can't be fulfilled independently.

Pissarides (2011) uses the term "matching" to describe his view of labour market equilibrium, the idea being that the job seeker aims for a suitable job rather than a convenient income, and in the process of pursuing and acceptance of a good match are involved both the prospective employee and the employer equally.

The other side of the bilateral concept of "matching" is that of "mismatching" (incongruence; discrepancy; incompatibility), which in the context of the labour market refers to the incompatibilities that can emerge between the qualifications of an individual applying for a job and the employer's requirements for a vacancy.

Concerning the *skills mismatch* concept, European Commission (2017, p. 4) provides the following definition: *Skills mismatch refers to a discrepancy between the demand and supply of skills on the labour market. In other words, a situation in which the skills sought by employers are different from the skills offered by job-seekers or workers. If persistent, skills mismatch, which can take different forms, can lead to short and long-term economic and social losses for people, employers and society.*

Mismatching involving the education variable is approached differently by economists and sociologists. Research in the economic area has considered aspects related to the costs of looking for a job, the conditions of job allocation and the effects of employee-employer incompatibility on wages, productivity, labour market equilibrium, or unemployment. On the other hand,

sociology looks at aspects such as over-education, under-education, social stratification, occupational status, and vertical or horizontal educational mismatch. Vertical mismatch includes the employee or job candidate possessing too much or too little education (knowledge, skills, abilities) relative to the needs of the job, while horizontal mismatch refers to the field of study inappropriate for the job held (Kucel, 2011; Verhaest, Sellami, and Van der Velden 2017).

The congruence of education with the job is strongly influenced by the specificity of the field of study, being easier in fields such as health or education (Boudarbat and Chernoff, 2010). Moreover, as pointed out by Van de Werfhorst (2002), the congruence is closely related to obtaining a higher salary level for certain fields (e.g. economic, technical, communication) and lower or non-existent in fields targeting generic skills (e.g. culture). In order to quantify and solve the mismatches that have arisen at the level of skills possessed by graduates of higher education, professional path monitoring studies have been implemented. These can be found in the specialized literature under names such as tracer study, graduate survey, alumni survey, etc. Schomburg (2016) defines these studies as standardized surveys (in written or oral form) conducted among graduates of educational institutions, which take place some time after graduation or at the end of vocational training. Tracer study can be defined as a retrospective analysis of graduates by means of a standardized survey, which take place after a period of time after graduation (normally between 6 months and 3 years) and are longitudinal in nature.

In the present study, by monitoring the professional path of the graduates, we mean collecting, processing and providing relevant information regarding the insertion into the labour market of the higher education graduates and also regarding the efficiency / inefficiency of the graduate study programs for the achievement of professional objectives, from the perspective of graduates.

## Data and methods

The data were gathered through a sociological survey based on a self-administered online questionnaire (CAWI – Computer Assisted Web Interviewing), distributed exhaustively to all bachelor's level graduates of the West University of Timisoara, 2017-2018 class. Data collection was developed in two steps, being a longitudinal study (an essential characteristic of a tracer study). The first wave of the survey was applied six months after graduation, while the second

wave was applied twelve months after graduation. The response rate was 25%, close to the European average, where response rates range from 16% to 60% (Allen and Van der Velden, 2009).

Correlation, contingency and descriptive analyses were conducted using a series of items extracted from the gathered data, such as: The route followed by graduates after completing their studies; The situation of graduates after graduation; Skills provided by the school vs Skills required in the labour market; Didactic activity perception, Perception of the university experience, Job satisfaction correlated with Graduated specialization vs workplace, Job satisfaction related to the required level of training and Continuation of studies. The results are described in the next section.

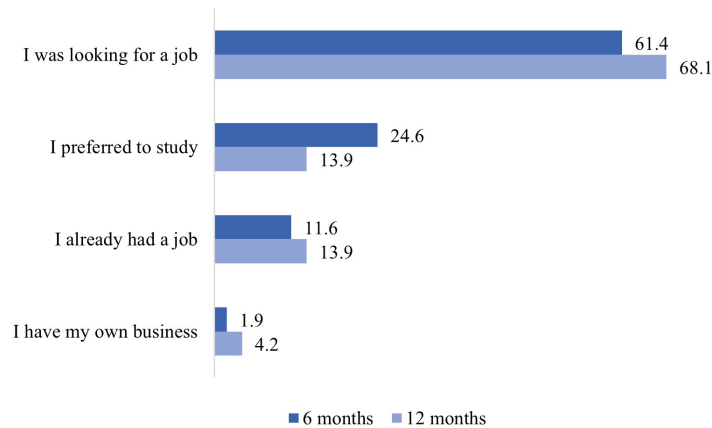
## Results and discussions

The analysis and interpretation of the collected results were carried out, on the one hand, from a descriptive point of view, with the presentation of the main findings resulting from data processing, and, on the other hand, from an inferential point of view, with the realization of some associations and correlations.

Considering that this study was a longitudinal one, the questionnaire being applied in two successive stages to the same cohort of graduates, the interpretation will also have a comparative character, especially in the case of those items where significant differences were found.

### Insertion on the labour market

The route followed by graduates after completing their studies is highlighted in **Figure 1** and **Figure 2** below. Most graduates state that they were looking for a job, both in the study conducted 6 months after graduation (61.4%) and in the study conducted 12 months after graduation (68.1%).

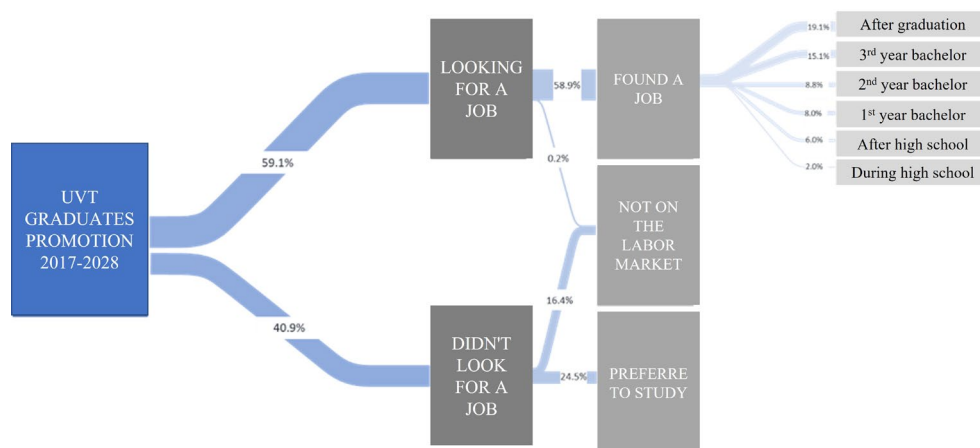


**Fig. 1.** The route followed by graduates after completing their studies

A percentage of 11.6% of graduates participating in the study conducted six months after graduation argue that already had a job during their studies compared with 13.9% of graduates participating in the study twelve months after graduation. Also, 24.6% of graduates stated, 6 months after completing their undergraduate studies, that they preferred to continue their studies without working. Nonetheless 12 months after completing their undergraduate studies only 13.9% said they continue their studies without holding a job.

Regarding the entrepreneurial skills of the graduates, only 1.9% said they held their own business six months after graduation, compared with 4.2% stating they had their own business twelve months after graduation and didn't have to look for a job immediately after graduation.

**Figure 2** contains a summary of the path followed by graduates after completing their studies, highlighting the moment they found a job.



**Fig. 2.** The situation of graduates after graduation



Employability among graduates is extremely high, except for those who started looking for a job during high school. Furthermore, most respondents said they found work at the same time they started looking for a job. Thus, it is obvious that success in terms of employment increases after graduation, indicating that the acquisition of a diploma can be an important "asset" for success in the labour market.

### Skills provided by the school versus labour market demand

Given the importance of the skills held by university graduates for integrating into the labour market, we wanted to see the level of matching between school and the labour market in the perception of our graduates.

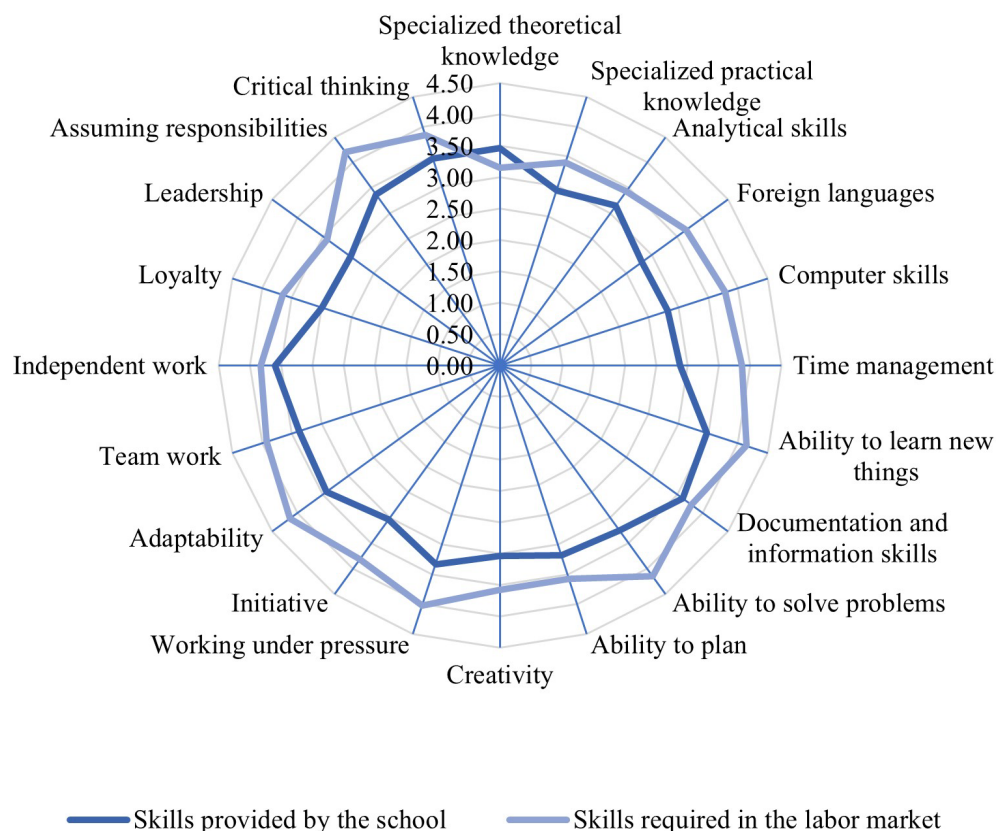


Fig. 3. Skills held vs. skills required

Highlighting these aspects is particularly important for decision-makers in the field of education and the labour market and/or for other researchers. For this purpose, the two items corresponding

to the competencies held by graduates and the competencies required by employers were analysed in a comparative manner (based on the weighted average Likert 5, where 1 = 'Not at all', 2 = 'To a small extent', 3 = 'In a moderate measure', 4 = 'To a large extent', 5 = 'To a very large extent').

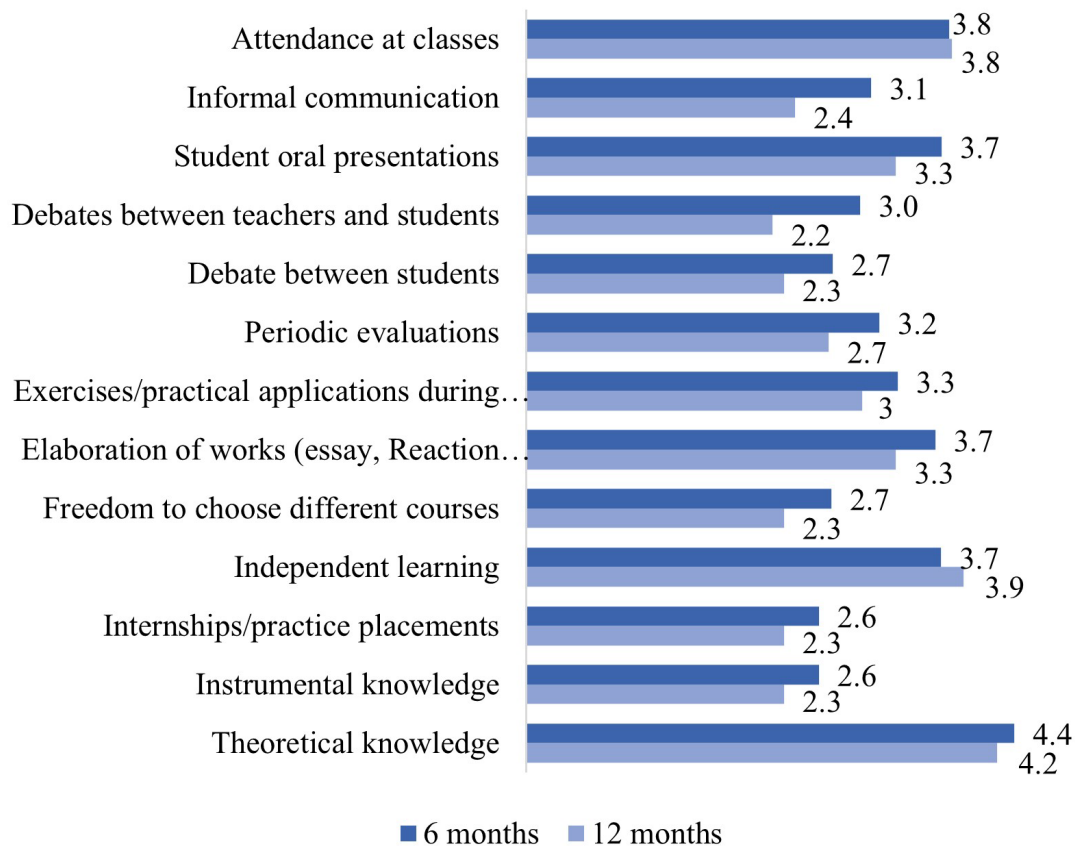
As can be seen in **Figure 3** above, all the variables considered as skills provided by the school were evaluated by the graduates as being below the level of those required at the workplace, except for the specialized theoretical skills, which have exceeded those required at the workplace. These findings answer one of the initial questions of our study: *Are the skills acquired in school congruent with those required in the labour market?*

### **Perception of school and the labour market**

Aiming to evaluate graduates' perception both over the teaching and learning process and their university experience, the following questions were addressed: *"To what extent did the teaching and learning activity in the faculty focus on the following aspects ..."* (**Figure 4**), and *"How do you evaluate your university experience on the following aspects..."* (**Figure 5**). For seeing if these perceptions change over time, the responses were analysed in the comparative register according to the two waves of survey applied to graduates.

### **Teaching and learning activity**

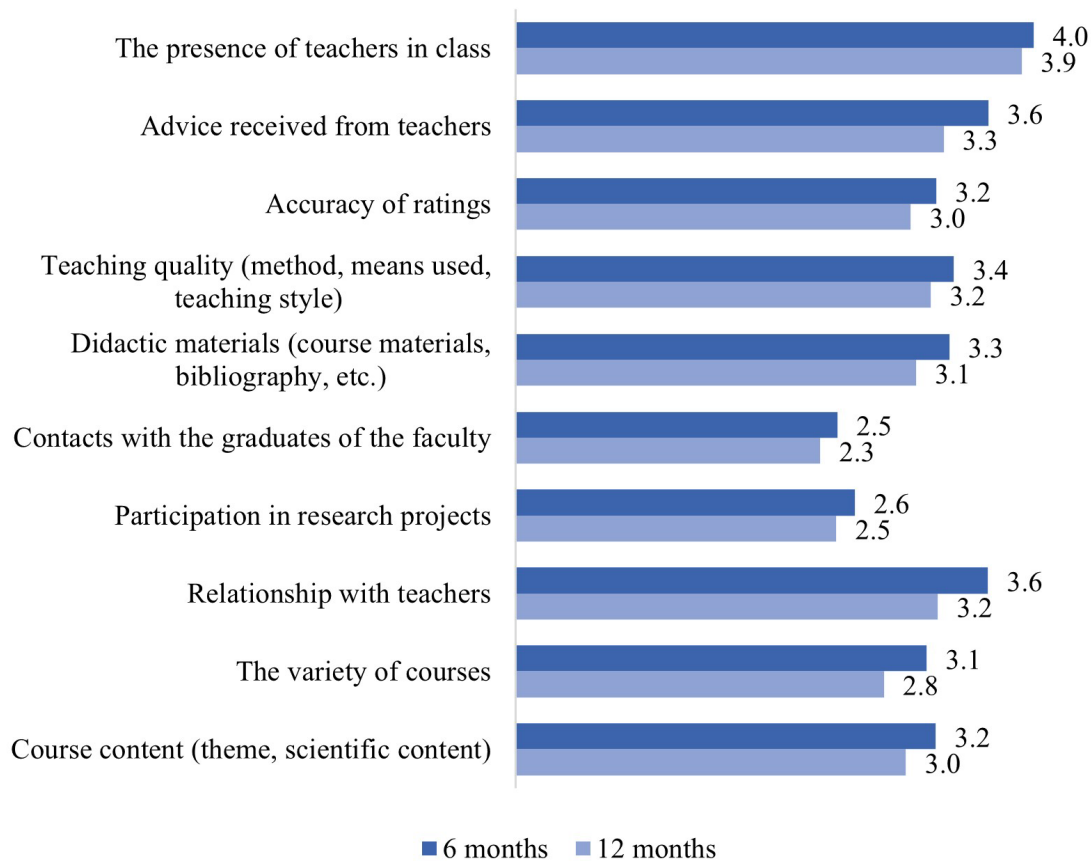
Although there is a tendency to decrease the score of perceptions for all variables at 12 months compared to 6 months after graduation (**Figure 4**), again the emphasis placed on theoretical skills in the activity of teaching and learning emerges, in detriment of the practical ones, with the lowest scores recorded for internships/practice placements, communication both between students and between teachers and students.



**Fig. 4.** Didactic activity perception

### The university experiences

The graduates' university experience was also analysed by comparing the answers received from the graduates in the two successive stages of the research (see **Figure 5**). In general, graduates declared themselves quite satisfied with their relationship with teachers during university studies, but what displeased them was the lack of participation in research projects and contact with the alumni community. Between the two tranches of responses, there do not seem to be significant differences in perceptions, even if a slight decrease in the perception score over time can be observed.



**Fig. 5.** Perception of the university experience

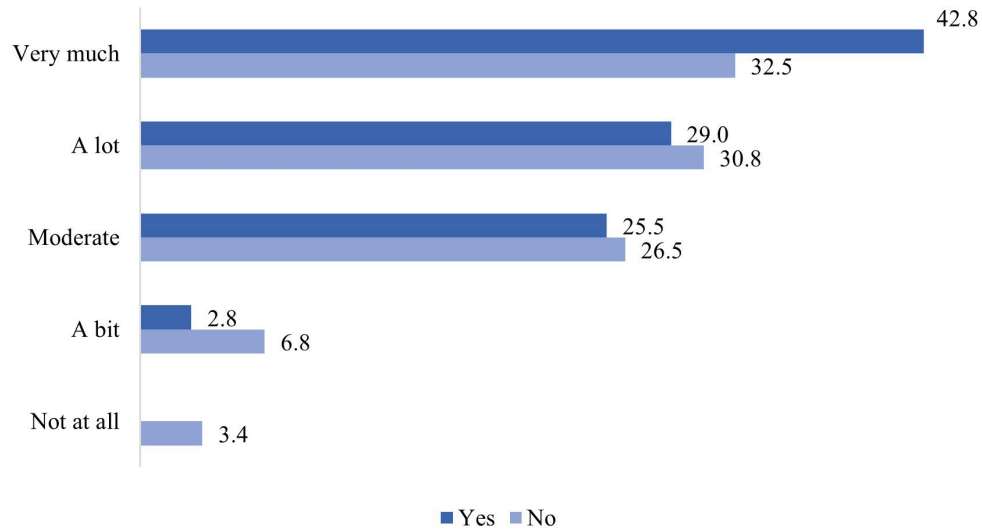
Thus, a correlation analyses was conducted and significant differences between the two groups of respondents were found. According to the results presented in *Table 1*, there were significant differences for some aspects of the university experience, with a significant negative association ( $p < 0.01$ ) for the content of the courses (topics, scientific content), the variety of courses, the relationship with teachers, didactic materials (course materials, bibliography etc.) and the advice received from teachers, and with  $p < 0.05$  for the quality of teaching (method, means used, teaching style) and the accuracy of evaluations.

**Table 1.** Perception of the university experience. Lot Correlations

How do you evaluate your university experience on the following aspects? * Lot Correlations	1	2	3	4	5	6	7	8	9	10	11	12
Course content (topic, scientific content)	1											
Variety of courses	0.76	1										
The relationship with teachers	0.56	0.57	1									
Participation in research projects	0.58	0.58	0.57	1								
Contacts with college graduates	0.54	0.52	0.47	0.67	1							
Teaching materials (course materials, bibliography, etc.)	0.58	0.57	0.49	0.51	0.56	0.5	1					
Quality of teaching (method, means used, teaching style)	0.75	0.63	0.65	0.54	0.52	0.5	0.59	1				
Accuracy of evaluations	0.62	0.55	0.66	0.56	0.54	0.42	0.52	0.71	1			
Advice received from teachers	0.6	0.57	0.72	0.58	0.53	0.41	0.51	0.74	0.73	1		
Class attendance of teachers	0.47	0.43	0.45	0.37	0.31	0.31	0.39	0.57	0.52	0.54	1	
Lot	-0.12	-0.16	-0.18	-0.06	-0.06	-0.16	-0.12	-0.09	-0.09	-0.15	-0.05	1

**Figure 6** below highlights a higher level of job satisfaction when the graduated specialization is congruent with the job held ( $\chi^2=0.001$ ). We obtained these results through a contingency analysis between the variable "*To what extent are you satisfied with your current job?*" and the variable "*Do you consider that the current job is closely related to the graduated specialization?*".

The result confirms what other studies of the professional path of graduates have shown, namely that the incongruence between the skills held and the workplace is a fundamental cause of dissatisfaction with the workplace (Vieira, 2005), which can lead to changing the job with one more suitable to the skills held (Allen, and Van der Velden, 2001). Thus, we can state that job satisfaction increases proportionally to the degree of congruence between the completed studies and the obtained job.



**Fig. 6.** Job satisfaction \* Graduated specialization vs. workplace

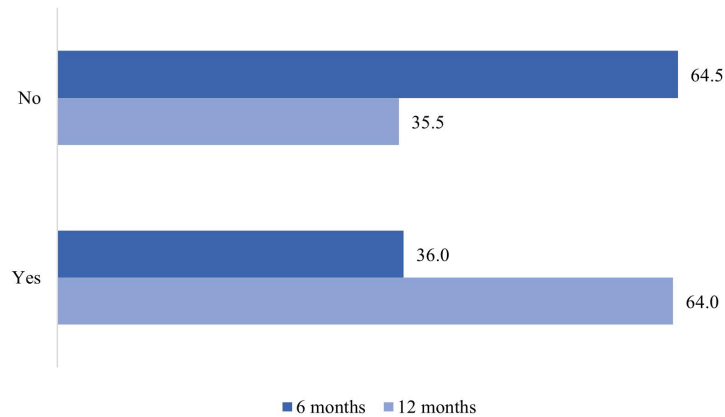
Similarly, the correlation between the training level required at the workplace and job satisfaction was analysed (*Table 2*). Thus, the level of satisfaction is significantly ( $\chi^2=.001$ ) higher when there is a matching between the two variables.

**Table 1.** Job satisfaction related to the required level of training

In general, what is the level of training required for the current job? * To what extent are you satisfied with your current job? Crosstabulation					
	Not at all	A bit	Moderate	A lot	Very much
Identical to my level of training	2.30%	5.40%	19.40%	27.90%	45.00%
Superior to my level of training			13.90%	40.30%	45.80%
Below my level of training	1.60%	8.20%	54.10%	21.30%	14.80%

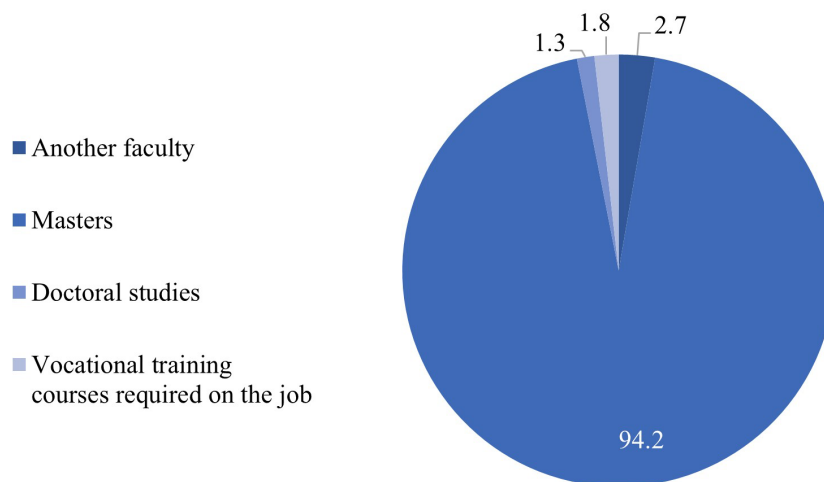
Thus, we can argue that job satisfaction increases proportionally to the degree of congruence between completed studies and the job held.

This fact could explain the graduates' decision to continue studies (*Figure 7*) mainly 12 months after graduation (64%).



**Fig. 7.** Continuation of studies

The difference in the decision to continue studying between the two groups was significant ( $\chi^2=0.000$ ).



**Fig. 8.** The form of education chosen for further studies

Overall, 94.2% of those who follow another form of education, declared that they continue their studies with a master's degree (**Figure 8**).

## Conclusions

For individuals and societies to cope in our dynamic and almost real-time changing world it is crucial to possess qualitative human capital and to use it wisely. In recent years the technological and digital developments (automation, robotization and artificial intelligence) in industry and

society, the aging population, globalisation, climate change, and migration have already impacted both the content and the demand for skills in the labour market. More recently the Covid 19 health, economic and social crisis deepened all the existing disruptions and ask for rapid digital and technological implementation. Among the most negative aspects was the effect on the economic and social youth integration, with a higher impact on youth jobs, education, and social lives (ILO, 2020). Even though the data in this paper were collected before the Covid 19 pandemic outbreak, it is critical now to draw attention through this paper to the need for implementing graduate surveys.

Most of the respondents in our study said they found work at the same time they started looking for a job. Thus, it is obvious that success in terms of employment increases after graduation, indicating that the acquisition of a diploma can be an important "asset" for success in the labour market.

Nonetheless, considering the competencies included in the present study, and analysing the matching of educational outcomes with labour market demand, it turns out that only theoretical competencies are provided to students above the labour market demand. Also, the results highlight that the graduates' job satisfaction increases proportionally to the degree of congruence between the studies completed and the job held.

The analysis of the graduates' perception of the teaching and learning activity in the faculty confirmed the emphasis placed predominantly on theoretical knowledge to the detriment of practical ones and highlighted the graduates' dissatisfaction with the lack of debates between students or teachers and students during courses and seminars.

The university experience has been positively appreciated through the lens of the relationship with teachers. However, graduates reported dissatisfaction with the lack of opportunities to participate in research projects and the link with the alumni community.

It is important to mention that most of the bachelor level graduates (94.2%) in this study, with or without a job 6 months, respectively 12 months after graduation, felt the need to continue their studies, specialize, and head for a master's program. One explanation could be the mismatch of completed undergraduate studies with jobs found after graduation. Some studies (Tomlinson, 2008) also indicate that after completing their studies, graduates increasingly find themselves having to add value to their completed studies in order to be competitive, even though, in the



general perception, academic studies still contribute significantly to entering the labour market. Although from a social and cultural point of view diplomas have always been considered rich in signals that convey that their holders possess the necessary skills to cope with a job, they have often been shown to be incompatible with the skills required for the employer (Bills, 2003).

This study aims to capture the attention of the stakeholders in the field of education and labour market, (e.g., employers, higher education institutions, and political decision-makers) on the importance of implementing tracer studies that could have an important role in closing the gaps in today's dynamic labour market.

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