Required skills for employability in Portugal from graduates and students of the Polytechnic Institute of Bragança (IPB)

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Abstract

The Polytechnic Institute of Bragança (IPB) developed an online survey, called the Observatory of Students and Graduates, aimed at entities in Portugal as a means of gathering information about the stakeholders view of IPB graduates and students, regarding skills for employability. Of the total (424) entities contacted, 118 responded, representing 28% of the total. It was noted that 79 of the responses have included IPB students and graduates in their staff, being 27% entities of the Agroforestry-food sector, 16% from the Consulting, Real Estate and Finance sector, and 14% from the Transport and Commerce sector. IPB graduates and students's skills were discussed from the perspective of employers. 12 skills were listed, with an average of 95% of responses between "Very Important" and "Important". The skills that stood out the most were: "Learning" and "Motivation/Involvement". The lowest priority skills were: "Physical: Robustness and manual dexterity", followed by "General Culture". These data point to the clear fact that the soft skills have greater relevance than hard skills. One of the justifications is that the advent of artificial intelligence, and other technologies that have been performing functions that overlap with technical - human knowledge.

Keywords: *skills; employability; hard skills; soft skills.*

1. Introduction

Human or professional competencies are understood as synergistic combinations of knowledge, skills and attitudes, expressed by professional performance in a given context or in a certain organizational strategy (Carbone et al., 2005; Freitas, Brandão, 2005).

Competencies can be divided into two categories: hard skills and soft skills. As for the first, Rainsbury et al. (2002) define hard skills by: "*They are skills related to technical aspects to do some tasks at work and often take into account the acquisition of knowledge*" (Pager et al., 1993). In general terms, soft skills are defined as "interpersonal skills, human, personal or behavioral skills needed to apply technical skills and knowledge in the workplace" (Weber et al., 2011). Moss and Tilly (1996) define soft skills as: "Skills, abilities and traits that relate to personality, attitude and behavior rather than formal or technical knowledge".

The careful combination of hard and soft skills is essential to achieve professional success, however this study shows that the world is changing and self-knowledge is increasingly required to the detriment of knowledge.

2. Survey: Graduate and Student Observatory

The Polytechnic Institute of Bragança (IPB) developed and ran an online survey, aimed at the entities that were included in IPB's database, to gather information about the entities' employability in relation to IPB graduates and students.

2.1. Survey Universe

In the survey, 424 entities were contacted, located throughout the territory of mainland Portugal, and the period for collecting responses was from April to August 2020. The entities responding to the survey were divided into 11 sectors, according to the respective codes of conduct, economic activity (CAEs) or similarities between the main activities developed, being defined as:

> G1. Agroforestry-food;
> G2. Information Technology;
> G3. Manufacturing / Extractive Industries; G4. Engineering;
> G5. Transport and Commerce;
> G6. Consulting, Real Estate and Finance; G7. Health and Social Support;
> G8. Art and Culture;
> G9. Research and Education;
> G10. Hospitality, Catering and Services;
> G11. Public Services.

2.2. Employability relationship of entities with IPB graduates and students

The first question to be raised was whether the responding entities had an employability relationship with graduates and students in training by IPB, and the answer to this question was acquired through the following question: "Does your entity have staff, graduates or students of IPB? ". The entities that answered "No" are those that do not have IPB graduates or students in their staff. Of a total of 118 entities that answered this question, 79 said "Yes", that is, they have graduated employees or students from the IPB, corresponding to 67% of the entities. Regarding the division of entities in each sector, the percentage can be seen in
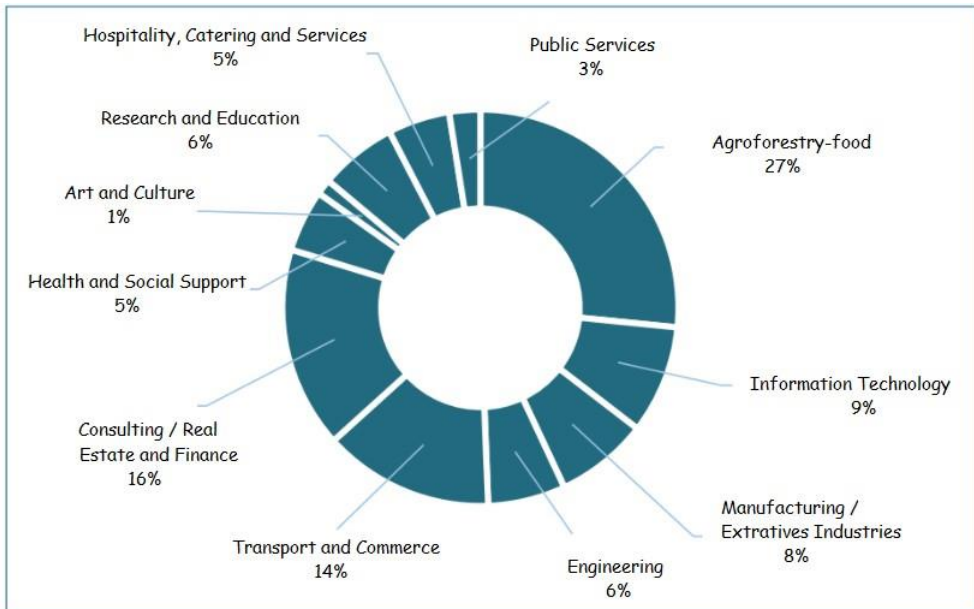

Figure 1. Graph of sectorization of the corresponding entities related to similar activities. Source:Own source.

Among the contacted entities, the sectors that stood out for integrating more graduates and students of the IPB were G1.Agro-forestry-food with 27%, G6.Consulting, Real Estate and Finance with 16% and closely followed by G5.Transports and Commerce with 14%.

According to data from the National Statistics Institute (INE) located on the PorData website, gross value added (GVA) points out that the tertiary sector is the most relevant in the Terras de Trás-os-Montes area, accounting for 63% of participation. However, the weight that the primary sector (Agriculture, Animal Production, Hunting, Forestry and Fisheries) has in the region is also notorious, representing 9.7% of GVA, a percentage higher than that verified at national level, which justifies the that was visualized in the graphic above.

2.3 Competencies of IPB graduates and students

In the criteria regarding the competences that the entities attribute as relevant in the recruitment of a new employee, a list was organized with the main competencies cited in articles and placed in the survey to be evaluated. These competencies should be analyzed and classified according to their relevance to employers. The proposed classifications were: Very Important - Important - Little Important - Not Important. The 12 skills listed were defined according to the following description:

1. Learning: Availability and ability to learn continuously, namely in the workplace;
2. Social / Cooperation: Ease of interpersonal relationships and teamwork, namely interdisciplinary;
3. Flexibility / Transfer: Use of prior knowledge to adapt to different situations, processes and requirements;
4. Motivation / Involvement: Willingness to do, availability for work and identification with the entity;
5. New Technologies: Appetite to deal with technological equipment, databases and specific software;
6. Communication: Transmit and interpret different forms of oral and written expression;
7. Autonomy: No dependence on systematic orders from the head, assuming risks and responsibilities;
8. General Culture: Detention of broader knowledge and not directly related to the job function;
9. Responsibility: Assumption of work tasks and company values in conscience;
10. Physical Robustness / manual dexterity;
11. Innovation / creativity: Introduction of new ways of doing, ability to respond to unexpected situations;
12. Technical Knowledge - Specific: Ability to perform technical tasks in the area of training and / or professional performance.

Figure 2 shows a graph of the distribution of competences and the classification given to them.
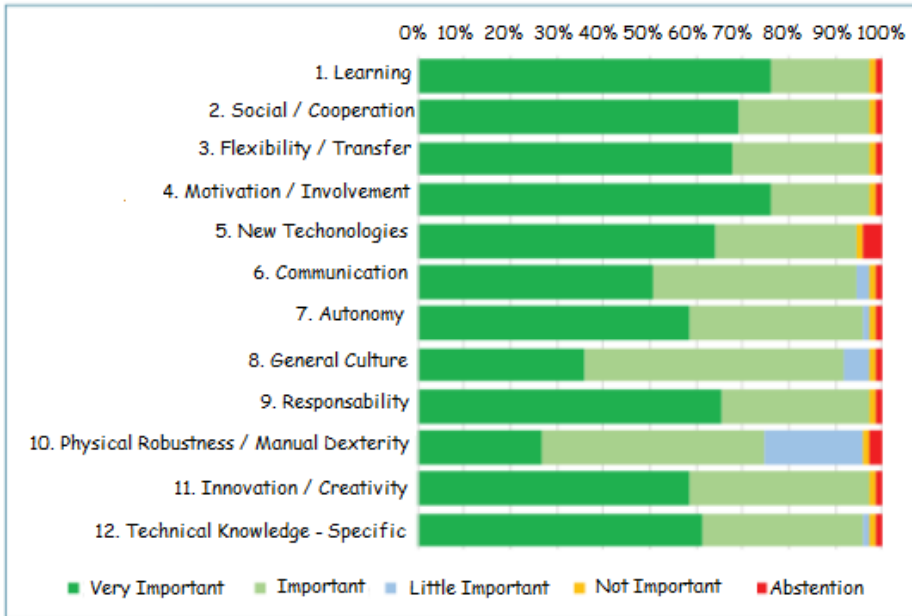
Figure 2. Distribution of competences and the classification given to them.

The vast majority of voted skills remained at an average of 95% recognition between "Very Important" and "Important", being considered skills of great value on the part of employers. The skills that stood out the most were: 1.Learning and 4.Motivation/ Involvement, both with 57 votes (76%) as "Very Important" and 16 votes (21%) as "Important", with the highest priority skills employers. The lowest priority skills were 10. Physical Robustness/ Manual dexterity, with only 20 votes (27%) as "Very Important" and 16 votes (21%) as "Little Important", followed by 8.General Culture, which received only 27 votes (36%) as "Very Important" and 4 votes (5%) as "Not Important". The 5. New Technologies competency was the one that had the most abstaining votes, this reflects that the employer does not know how to point out whether the use of new technologies is important or not at the time of recruitment, this competence ends up being more specific in terms of some areas of the knowledge than an essential competence in general.

3. Conclusion

The collected data point out to the fact that current employers are interested in professionals who have availability and the ability to learn continuously, and have a strong motivation and commitment to exercise the requested demands, and it is clear that the skills that fit the soft skills have added value compared to hard skills, and as a comment in one of the responses,

the following suggestion was made: "In addition to the above, develop autonomy and accountability skills".

Moreover, our results should be communicated to higher education institutions, to improve course plans and the interface with the employers and companies, but also to improve opportunities to students improve their weekness, according to the needs and skills valued by employers. Other authors have previously emphasised the importance of internships and work placements for skills development, but also the risk these initiatives have in increasing social and educational inequalities (Bonnard, 2020). In some courses and institution internships and work placements are optional, giving the student the responsibility to anticipate and appropriate, themselves, its potential benefits. Boonard, 2020 suggested that instructors should present to students how the work placement can be valued and how they can appropriate their potential benefits in their skills development, employability competecncies and curriculum. Similar results were reached by Velasquez, 2020, that promoted an interesting study including 14 people (managers, teachers, students, nursing graduates and technical nursing professionals) workin in higher education and health services, and concluded it is propitious that managers and teachers plan and organize teamwork to monitor graduates, but unfortunately the reality in educational institution is that teachers gave more theoretical training than practice, with action not corresponding to vocational training, and a profile that did not meet current needs; such as comprehensive training with values, knowledge of languages or dialects and the use of ICTs, in addition to soft skills, and code of ethics (Poquis Velasquez et al., 2020).

The results of the present study are of high importance to higher education boards and course directors. We highly recommend proximity, since the first year of graduation, between students, teachers and employers. Taking the students to the companies, public and social institutions, but also bringing the employers inside the classroom, can help a closer relation between teaching, learning and market needs. Future studies should be performed including 360 degrees evaluation, also collecting feedback from teachers, students and alumni, together with employers.

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