

Determination of professional skills based on the needs of the local Food and Beverage Industry, in the area of influence of the National University of Lanús (Argentina)

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Abstract: *Through this work, we sought to determine the professional skills required of the Bachelor of Food Science and Technology of the National University of Lanús (UNLa) at the local level, in order to relieve opportunities for optimization of the current Curriculum.*

To do this, we proceeded to relieve and systematize experiences and opinions of graduate students, as well as with food companies and others stakeholders in the area of influence of the UNLa.

Keywords: *Curricular adaptation, Professional skills*

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I. Introduction

The National University of Lanús defines itself as an urban and committed, problem-oriented university (Jaramillo, 2008). Therefore, and understanding that “learning consists in participating and contributing to the practices of their communities” (Wenger, 2001, p.25), the definition of professional skills in the case of the Food Science and Technology career of this University must necessarily be based on the exchange with the immediate social and productive environment.

The skills are a bridge between education and practice and are at the same time desirable goals from an educational point of view, professional and practical. According to Wenger, the interaction between experience and competence is a fertile ground for learning, maintaining tension between them to ensure that learning does not stagnate.

Given the above, it is necessary to determine the skills for the optimization of the Curriculum of the aforementioned career, but looking for a methodology that allows structuring them from the requirements, opinions and experiences of both graduates who work professionally in the region and the other actors that make up the socio-productive network that involves the University.

II. Developing

The starting point of the work has been the experience that students who take Pre-Professional Practices in the fourth year of the career, who have suggested that the Curriculum merits modifications. These modifications, according to the majority opinion, should be oriented to the new realities faced by the Food and Beverage industry, which advances strongly not only from the technological, but also from the normative and commercial.

It is known that the speed with which food processes evolve, as well as the short life cycles of products (Ordóñez, 2009), impose a systematic review of the Curriculum, and the skills approach is presented as the solution to the whole of problems raised.

III. Theoretical framework

At present, when talking about the profile of the graduate, visualizing it from the perspective of professional skills, it is spoken of “an articulated set of knowledge that includes the acquired knowledge (knowledge), the skills or abilities that it managed to incorporate (know-how), the values and attitudes that he managed to understand (know how to be), and the actions for effective performance (know how to act)”. (San Martín, 2002).

In the Regional Conference of Higher Education 2018 (CRES) convened by the UNESCO International Institute for Higher Education in Latin America and the Caribbean, the need to review the curricular structures

in order to guide them by skills was proposed, among others, to promote lifelong education, considering the student as a permanent ally of a process in which their knowledge and skills are at the service of social transformation for the good of all, guide society and thus contribute to solve chronic problems that afflicts it.

The concept of skills arises from the need to value, not only the appropriate set of knowledge, skills and abilities developed by a person, but to appreciate their ability to use them to respond to certain situations, solve problems and develop in professional practice. Skills tend to convey the meaning of what the person is capable of or is competent to perform, the degree of preparation, sufficiency or responsibility for certain tasks. (Howes and Corvalán, 2005).

In Higher Education and from the curriculum, it is intended to achieve an integrative approach, which generates as a final product of an educational process, skilled performance. A university training curriculum, in this context, would be “a proposal to grow a range of skills whose achievement would be the professional degree, the University being the endorsement before society of the capabilities installed in its graduate” (Howes & Donoso 2003). The skills support the integration and interrelation of all disciplines that should benefit students. Its definition will allow institutions a benchmark with which they will be able to review, redefine and restructure their curricula. The set of skills defines the learning results of the disciplinary and professional training of the degree awarded in relation to the profile. In Argentina there are proposals for reform of curricula based on competence (e.g., Working Group of the Dental Career of the Universidad Nacional del Nordeste, Bessone et al 2006).

It is particularly important the application of this alternative in Engineering, based on the establishment of the standards of its different branches, originated in the consensus within CONFEDI (Federal Council of Engineering Deans).

Regarding the Bachelor's degrees related to Food (Bachelor's degrees in Food, in Food Science and Technology, in Food Technology and in Bromatology), it has become very difficult to establish standards, and the skills have not been the foundation of the conformation of the curricula.

Besides, Ordoñez (2009) and the Agribusiness and Food Program of the University of Buenos Aires, have shown that the training trajectories of food and agronomy careers are not directly related to the needs of the national agribusiness, particularly if the problem is focused on added value.

II. Problem Statement

It is intended to determine professional skills based on the new scenarios and challenges of the regional Food and Beverage Industry, defining the latter based on the opinions and contributions of graduate students, local businessmen and other actors of interest.

III. Methodology

The investigation was structured in three following stages:

- Analyze background of former students and related companies, to determine the sample of relevant actors to be surveyed / interviewed.
- Design, conduct and process semi-structured interviews with a focus on the new scenarios and challenges for the regional Food and Beverage Industry, to gather the opinions and contributions of the selected relevant actors.
- Determine the generic skills based on the information obtained, for which the approach of Maragno et al (2009) was taken as a model, without breaking them down into functions and sub-functions.

VI. Results

An exhaustive work of exchange was necessary from the consultations that constituted the first approach, through consultations to professors, advanced students and graduates.

In this way, a basic survey was designed that, when answered, could be acceptable for the members of the sample, while opening up the possibility of deepening throughout modifying questions.

It was possible to survey all the actors of the sample (91 cases) that were distributed as illustrated in Fig. 1.

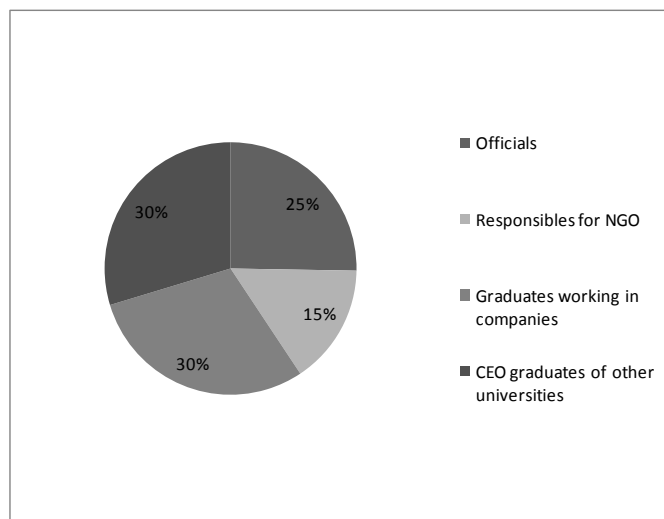


Fig. 1: Distribution of respondents by category

There are no graduates who work at decision levels in NGOs or in the State, which is why in these categories there was no differentiation that can be found in the case of companies.

When the issues that were repeated by the interviewees were extracted, there were no significant differences in the responses of the two categories related to companies.

The issues arose from questions that aimed to reveal the shortcomings or opportunities for improvements in the training of Graduates in Food Science and Technology. Thus the results were obtained as they appear in Figure 2

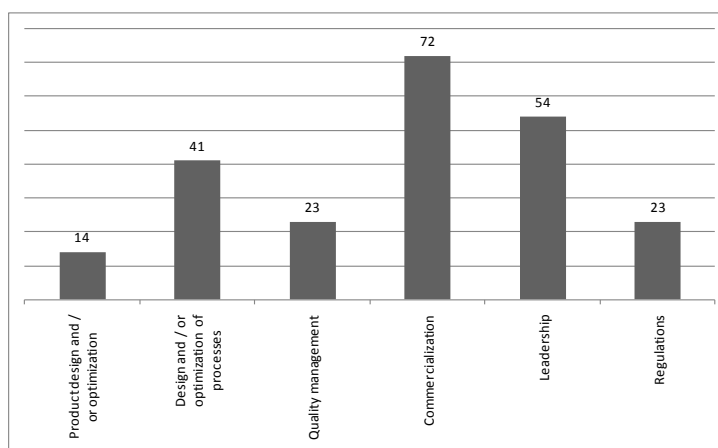


Figure 2: Frequency of main issues (shortcomings or opportunities for improvement)

VII. Discussion

According to the exposed results the career should face the next adjustments of its curriculum focusing on three aspects: the commercialization of food, the leadership of multidisciplinary work teams, and the design and / or optimization of elaboration processes in multiple contexts public and private requirement. The rest of the topics appeared in the conversations with much less emphasis.

The main issues must then be translated into general skills, and then broken down into functions and sub-functions for their effective inclusion in the curriculum.

It is remarkable that two of the three outgoing themes are not framed in basic or applied technologies, but within the complementary knowledge, which go outside the traditional formation of scientific-technological careers.

VIII. Conclusions

The complexity of the field of food's own problematic, was reflected in the main themes derived from the interviews, which forms a new basis for curricular adaptations in this type of career. Thus, general skills emerged that are listed below according to the relative importance:

- Competence for professional commercialization of food in a large sense, including inputs and intermediate products.
- Competence to lead multidisciplinary work teams.
- Competence to design and / or optimize versatile manufacturing processes that respond to consumer requirements and to both health and environmental regulations that evolve rapidly.

It is then defined a starting point to face the adaptation of the training of Graduates in Food Science and Technology, emphasizing local issues of socio-productive actors close to the UNLa, thus respecting the self-definition of the study center itself , which emphasizes its local commitment and its orientation to problem solving.

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