



CNaPPES.22

8º Congresso Nacional de Práticas Pedagógicas
no Ensino Superior

E-book

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14 e 15 de julho de 2022



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Business-University collaboration in designing Work-based experiences

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Abstract

Some authors have claimed that a gap exists between the competences presented by university students at graduation and the needs of the labor market organizations. Albeit previous studies suggest that, in recent times, students have been prepared with growing amounts of knowledge (cognitive skills) and technical abilities, but it seems that they still falter with respect of some crucial soft skills. Critical thinking, teamwork, informed decision-making, adaptability, and communication are among the most demanded skills in the labor market.

Under the Erasmus+ project Think4Jobs, a University-Business collaboration was implemented to design work-based activities to be included in pilot course curricula of the graduation programmes in five areas: Teacher Training, Business and Economics, Business Informatics, English as Foreign Language and Veterinary Medicine. In the present communication we would like to discuss how the identification of needs was performed and how the University-Business collaboration was developed to construct blended curricula in some courses of the Veterinary Medicine programme, including the definition of outcomes and identification of skills and dispositions to be developed, the design of work-based activities and the assessment of the students' performance.

Keywords: Work-based learning, Skills mismatch, Decision-making, Critical thinking, Skills, Dispositions.

1. Background

Skills gaps or skills mismatches have been claimed regarding young graduates at the entrance in the labor market. Some claim that, in general, graduates leave the University

with adequate cognitive skills for their area of action, but still, they are underskilled particularly with regard to soft skills (McGuinness & Ortiz, 2016). The ability to communicate, critically act to solve a problem, be dependable in team-work or be able to show creative approaches to problems, are among some of the skills sought by labor market organizations (LMO) when in searching of an employee. To cope with identified gaps, LMO usually relies on-the-job training activities or informal courses, that usually also are developed without the participation of Universities.

In the past decades, most developing countries supported the access to higher education levels to reduce the knowledge gaps, in response to the increased demand of advanced education levels by the LMO. Furthermore, accompanying the growing technological advances, Universities put a focus in the capacitation of their students' cognitive knowledge (Payan-Carreira et al., 2022). Consequently, in many countries a consistent reduction in undereducation has been recorded. Still, the gap or the mismatch persists between university graduates at the entrance in the workforce and the needs identified by LMO (Bischof, 2021) .

The Think4Jobs Erasmus+ Project, endorsed by a consortium of five Higher Education Institutions (HEI) and five LMO from five countries (Germany, Greece, Lithuania, Portugal and Romania), aims at reducing perceived gaps or mismatches in critical thinking skills needed to the successful employment and transition of new graduates from the university to the labour market. It is this project understanding that the Higher Education curricula aiming to promote critical thinking on their graduates should consider the particularities of each profession, while adapting it the specific needs of the labour market, which will be empowered by University-Business cooperation. This Project tackles five areas: Teacher Training, Business and Economics, Business Informatics, English as Foreign Language and Veterinary Medicine.

The present communication intends to discuss the approach used to identify the needs, and how the University-Business collaboration was developed in order to construct a framework transversal to the clinical subjects of the Veterinary Medicine programme.

2. Description of the intervention

The starting point for the identification of educational mismatches regarding critical thinking skills and dispositions, the focus group (FG) approach was used (Dumitru et al., 2021), involving 4 groups representing, respectively, teachers [n=10], students enrolled in curricular traineeships [n=6], senior tutors [n=10], and former trainees (less than 2 years in the category) [n=6]. This approach allowed to compare the conceptualization of critical thinking by the teachers in Veterinary Medicine Programmes and the labor market (LM) representatives, and to identify enticing skills to be mastered by Veterinary Medicine graduates at the entrance of the labor market.

2.1. Identification of formative needs

The FG showed that for the LMO, critical thinking conceptualization is somehow mingled with clinical reasoning, in different overlapping dimensions according to the field of the medicine the LMO represented. LMO expect the trainees and newly graduates to show confidence and ability to interact effectively with other people and tasks, possess effective decision-making skills and associate actions in practice. Proactivity, autonomy, systematicity and analicity, self-confidence, as well as metacognition and self-correction were some of the skills and dispositions sought by LMO when contracting.

To reduce the identified mismatches found in critical thinking and other soft skills, the recommendations for the Veterinary Medicine Programme included the design of learning activities that would allow the students to experience work-based situations, issues from the routine of a veterinarian practitioner, and gain “practical skills”.

2.2. Design of activities

The use of ill-structured problems framed in a case-based approach to learning was selected, among the available pedagogical strategies, as the most suitable in clinical subjects in Veterinary Medicine. Such strategies use an ill-structured situation as a starting point to train interpretation, analysis, inference, evaluation, explanation, and clarity and self-regulation skills, as well as decision-making, in veterinary contexts.

A framework has been designed for subjects within the clinical disciplinary scope of the programme that may be transposed to multiple subjects (table 1; Dumitru et al., 2021), and modified in terms of content, time-length and difficulty according to the level of the intended training, and also used in association with training of technical skills to be developed in internal traineeships.

One week in advance, students will receive via Moodle a document named Activity-Plan, that will prepare them on what is expected to do before, during, and after the lesson. It will define the content scope (e.g., ovarian diseases with disturbed reproductive cyclicity, or mass exposed in the vulva), the learning objectives, the intended self-learning and the requested output related to self-learning, as well as on the expected time spent in the preparation and development of the activity. Lastly, the assessment rubrics (focused in assessing reasoning key skills) will be presented in advance, for both the preparatory self-learning output and the in-class activity. This plan also defines the kind of output to be produced at the end of the activity and the time frame to its submission. The recommended references are currently made available to students via Moodle. Students will also be encouraged to search for additional references on the Web.

Students will be distributed to 5-element groups, created randomly by the teacher, and the group constitution will be announced with the activity plan, so the students can start organizing the roles within the team.

In-class, the case vignette is provided to the group of students and the timeframe for each segment of the activity (representing a moment of interaction with the teacher/tutor) is defined. In total, the activity is designed to last 3 hours.

3. Anticipated challenges to the framework implementation

The proximity between the activities and the daily tasks the Veterinary Practitioner perform in a clinical context should engage and motivate the students to learning experiences that both increase their cognitive learning and empower them with other skills or dispositions requested in workplace. Also, by involving LMO representatives in the construction and modulation of the activities, the work-based learning opportunities are brought into the academic context. Based on Business-University Cooperation, these activities allow to bridge the distance between the classroom and the workplace, without the need to send students to different workplaces during in their academic track.

Table 1

Framework to be used in the case-based activities developed for courses in the clinical area

ACTIVITY (STEP BY STEP)			CT SKILLS	CT DISPOSITIONS
General action		Specific action		
Step 1	Present the patient's problem	Depict the patient's initial story, question, complaint, or evident symptoms before history taking.	Interpretation Inference	Systematicity Cognitive maturity
		Identify the focus of the problem [Why the animal was brought to the consultation]		
		Provide all the hypothesis that may be associated with the problem [I: likely, II: less likely, III: not very likely]		
Step 2	Choose the questions to be asked to discriminate between the most relevant hypotheses	Query differential diagnoses Assess the quality of the information collected	Inference Evaluation	Communication Autonomy Evaluation Inquisitiveness Open-mindedness
Step 3	Provide the patient's clinical history information	Revise how the information influence the differential diagnosis	Analysis Interpretation Evaluation	Cognitive maturity Analyticity Systematicity
		Consider of the focus of the clinical problem has changed		
		Rank the most important information according to the value to raise the differential diagnostic list		
		Contrast the diagnostic approaches		
Step 4	Deliver additional information on request	Ponder if additional parts of the clinical exam are now required to exclude some unlikely, but important hypotheses	Analysis Interpretation	Systematicity Analyticity Communication
		Discuss how the findings contributed to redefine the diagnostic list (if it changed)	Interpretation Evaluation	Truth-seeking
		Discuss the additional exams necessary to confirm the most likely hypothesis and to discriminate between others	Analysis Interpretation Evaluation	Analyticity
		Interpret the findings from the diagnostic Tests	Evaluation Inference	
		Identify the discarded hypotheses on the bases of the additional information provided. Present your diagnosis	Interpretation Inference	

Table 1*(cont.): Framework to be used in the case-based activities developed for courses in the clinical area*

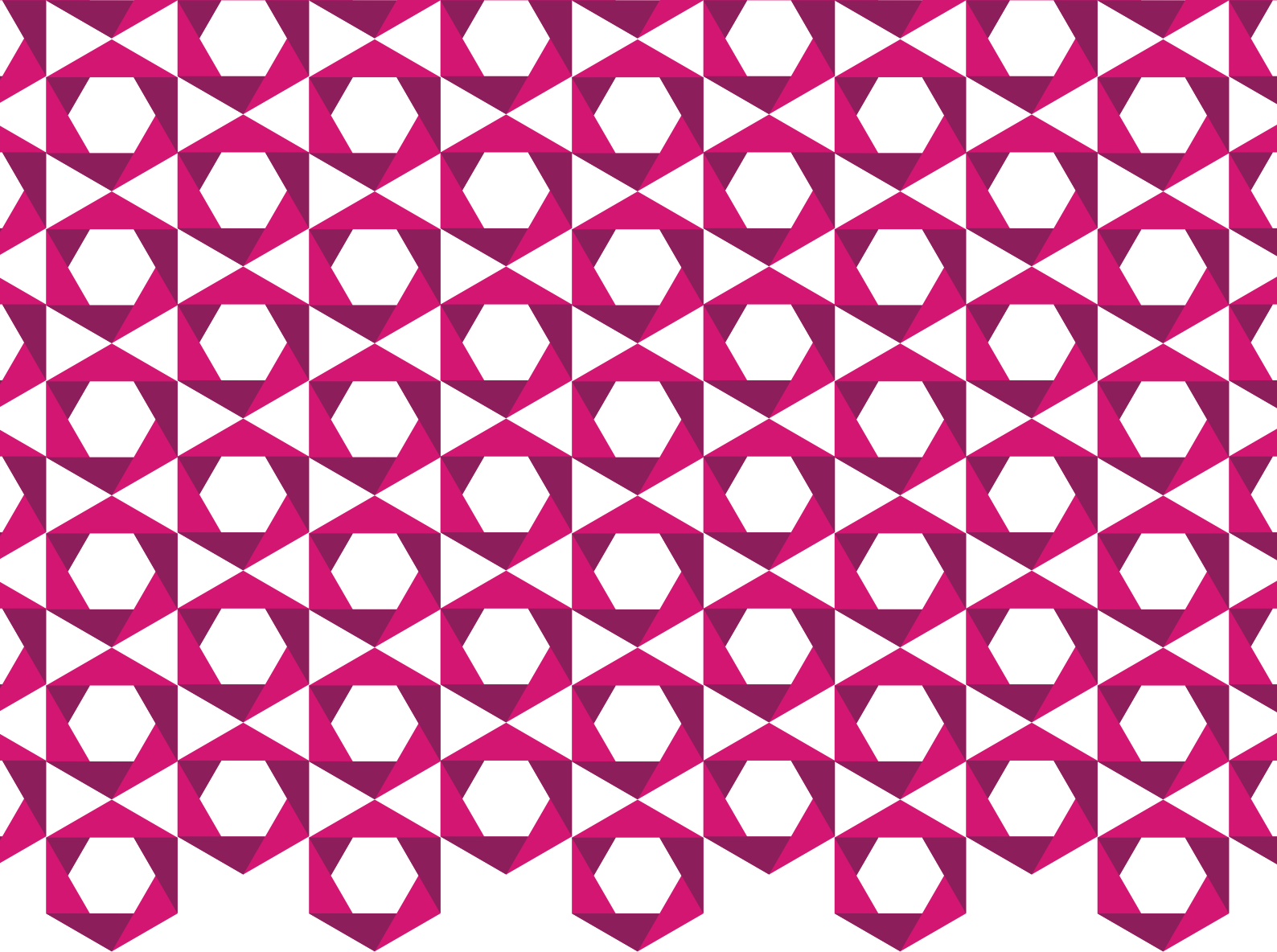
ACTIVITY (STEP BY STEP)			CT SKILLS	CT DISPOSITIONS
General action		Specific action		
Step 5	Therapeutic options	Discuss the therapy that is now indicated, given this diagnosis and patient circumstances	Analysis Evaluation Interpretation Explanation	Communication
		Select the most suitable treatment for a particular situation (consider the animal background, animal problem, co-related health issues, etc.)		
		Identify arguments to support the selected therapeutic options using a SWOT matrix		
Step 6	Schedule the follow-up	Present your prognosis	Inference Explanation	Systematicity Analyticity
		Discuss it with the teacher/ trainer		
		Provide a timeframe for when you expect to see the results of the treatment		
		Describe the changes expected and the timeline for those changes		
Step 7	Metacognition	Schedule the moments when the animal should be observed for the condition improvement [either for ambulatory or non-discharged animals in hospital care]	Inference Self-regulation Metacognition	Analyticity Open-Mindedness
		Revise your reasoning: verify your diagnosis		
		Suppose that the animal fails to show health improvements or presents additional complications. Detect what could have been wrong		
		Anticipate the critical point(s) in the animal's tutor compliance [time in treatment; effort; costs of treatment; failed expectations for the animal value]. Propose a mitigation plan for them		

Still some constraints are expected. Students in particular, but also teachers, are not used to this kind of teaching/learning activities. To students, this will request a different study investment, and self-regulation skills; it will not warrant the same performance as a memorizing-based assessment of student's cognitive skills, but rather focus on the students' reasoning competences, and thereby it can impact the grades the student are used to. The major positive effect may be represented to a softer transition into the demands of the workplace, a better integration in larger teams, and improved quality in decision-making and animal healthcare. While at the University, the link between the cognitive knowledge and its practical application is made clear.

Furthermore it will be more time-consuming to teachers when compared with the traditional teaching styles and learning, may compromise the teaching of long programmes and certainly increase the teach-related workload, while also imposing the need to be self-confident, open-minded, non-conformist and not be afraid of being challenged. Moreover, it will request a constant contact with the routine and reality of the profession, to build networks with LMO along with coping with the rapidly changing workplace and the ever growing advancement of science and technology.

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