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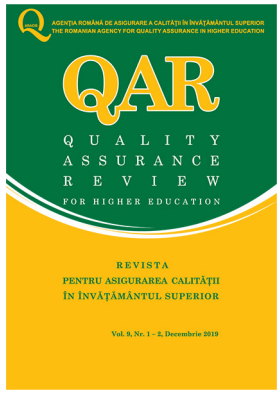

Quality Assurance Review for Higher Education

Evaluarea competențelor studenților de la programul de studii Medicină veterinară pentru creșterea calității predării și învățării

Sorin Daniel Dan, Pop Ioana, Evelyn Steinberg, Rodica Sobolu

Quality Assurance Review for Higher Education, Vol. 9, No. 1 – 2, 2019, pp. 16 – 26

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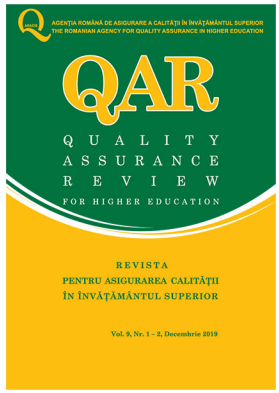

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Evaluation of Students Competences from Veterinary Medicine Study Programme in Order to Improve the Quality of Teaching and Learning

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Rezumat: *În vederea evaluării desfășurării și eficienței programului de studii „Medicină Veterinară" de la Universitatea de Științe Agricole si Medicină Veterinară din Cluj-Napoca, am evaluat competențele pe care le dobândesc studenții în diferite etape ale pregătirii lor. Principalul obiectiv al studiului este acela de a verifica nivelurile de competență percepute de studenți și de a le compara cu nivelurile de competență preconizate. Studiul s-a desfășurat în perioada 2018 – 2019, cu implicarea studenților din semestrul al 10-lea și din semestrul al 12-lea (aflați la sfârșitul programului de studii). Rezultatele studiului au fost analizate din perspectiva diferitelor elemente ale procesului de predare-învățare, precum curriculum, metode de predare și de evaluare și strategii de învățare ale studenților. Procesul de verificare a inclus două sub-grupe de studenți: una formată din studenți aflați în al 10-lea semestru, alcătuită din 15 studente și nouă studenți și a doua sub-grupă compusă din studenți aflați în al 12-lea semestru, alcătuită din 15 studente și șase studenți. De asemenea, au fost chestionate și cadre didactice din facultate. Studenții și cadrele didactice au completat versiunea online a chestionarului. În urma analizării rezultatelor, se pare că există multe lacune între competențele preconizate și cele existente efectiv, mai ales în cel de-al 12-lea semestru și cu precădere în ceea ce privește aspectele practice. Pentru câteva dintre competențele practice, nivelurile atinse de studenți au fost mai ridicate decât nivelurile predate,*

probabil datorită stagiilor de practică desfășurate de studenți în afara facultății. Posibilele măsuri recomandate sunt, pe de o parte, sesiuni de formare a cadrelor didactice din facultate în zona predării practice, iar, pe de altă parte, o consolidare a rețelelor cu partenerii din domeniul practicii. Experții din universitate, serviciile veterinare de stat sau sectorul privat ar putea găzdui prelegeri și demonstrații practice.

Cuvinte cheie: *competențe, medicină veterinară, asigurarea calității, a spori/ a consolida, predare, învățare*

Abstract: *In order to assess the progression and efficiency of the veterinary medicine study programme at the University of Agricultural Sciences and Veterinary Medicine Cluj-Napoca, we evaluate the competences that students have achieved at different stages of their studies. The primary focus of the survey is to screen students 'perceived competence levels and compare them to the intended competence levels. The survey was conducted during 2018-2019, with students in their 10th semester and 12th semester (at the end of the study programme). The survey results were analysed concerning different elements of the teaching and learning process, such as curriculum, teaching and assessment methods, and students' learning strategies. The screening process included two subgroups of students: one in their 10th semester, represented by 15 females and 9 males and the other in their 12th semester, represented by 15 females and 6 males. We also surveyed one group of faculty members. Students and faculty members completed an online version of the screening instrument. Based on the analysis of the results, it seems that there are many gaps between the intended and actual competences from the perspective of both students and faculty members. Also, the study programme did not foster all the students' competences up to the intended level, especially in the 12th semester and concerning the practical aspects. For some practical competences, the levels achieved by students were higher than the taught level due to internships outside the faculty. Possible recommended measures are, on one hand, training for faculty members in the area of practical teaching, and on the other hand, a strengthening of networks with partners in the field of working practices. University experts, state veterinary services or the private sector could be invited to host lectures and practical demonstrations.*

Keywords: *competences, veterinary medicine, quality assurance, enhance, teaching, learning*

Introduction

The premises that have contributed to the change and modernization of the institutions in the European Higher Education Area include: (a) the internationalization of education (implementation of the Bologna Process, mobility of students and teachers through the Erasmus+ program, European labour force mobility, the existence of regulated professions at the European level; (b) developing the concept of student-centered education, based on solving specific problems and, implicitly,

on training the necessary skills in the labour market; (c) so far, internal and external evaluation of the quality of higher education is based more on the environment in which the learning process is carried out, on the quality of the teaching staff and on the learning facilities, as well as on the content of the study programmes (Bologna Process, 2009; Gómez et al., 2017). Lately, it has become increasingly obvious that the performance of higher education is validated when hiring graduates. The correlation of the higher education with the needs of the labour market can be achieved only by students acquiring the competences and skills needed on the first day of employment. As a result, for each profession, respectively study programme, we need to know exactly what competences we want to offer to the students, taking into account the dynamics of the economic and professional environment, in close collaboration with the stakeholders (Lozano et al., 2012; Blömeke et al., 2013). A guarantee for the modernization of higher education is the implementation of new internal quality management procedures, which take into account these recent trends (Bergsman et al., 2016). These procedures must be based on key professional competences, as well as on the teaching system based on the accumulation of competences (Bergsmann et al., 2015; Bergsmann et al., 2018; Leticia-Concepción and Tójar-Hurtado, 2018). They must ensure that the modernization tools in the European Higher Education Area are properly implemented in European institutions of higher education. Although there have been remarkable results in improving the quality of higher education in recent years at European level, there are still many things to work on. The motivation of the study started from the need for competence-based teaching and their evaluation, issues that are increasingly at the center of EU debates (ESG, 2015), but the evaluation tools used are mostly based only on unilateral competences of the students or specific elements of the teaching process.

Materials and Methods

Sample

Our survey was realized during July 2018 – July 2019 at the Faculty of Veterinary Medicine Cluj-Napoca, by two subsamples of students, English line, first one in their 10th semester, represented by 15 females and 9 males and the other in their 12th semester, represented by 15 females and 6 males. We also had one subsample of faculty members, represented by 45 members of faculty staff, who added their perspective about students' achieved competence. Students and faculty members were recruited as participants via information materials sent by email, the official website of the faculty and face-to-face discussions.

Competence Model

The competence model was developed by the Faculty of Veterinary Medicine IQM-Team and approved by the Quality Management Council Board (Competence model Uni Ro, 2017). This model is based on the existing competences in our

faculty and was developed and implemented in the 2012-2013 academic year. Also, the new competence model takes the European System of Evaluation of Veterinary Training (ESEVT) Standard Operating Procedures, 2016, regarding "Day One Competences" into consideration (SOP, 2016). The competence model is structured into 7 competence areas. Competences have two aspects, a cognitive aspect (knowledge) and a practical aspect (skill). For each competence and - more specifically - for each aspect of each competence we defined the level that most students (75%) ought to acquire through our study programme.

Procedure

The competence levels used in our survey, developed in the course of the project "Internal Quality Management: Evaluating and Improving Competence Based Higher Education, IQM-HE" were represented as follows: Level 0 = No knowledge/praxis, meaning that the student is incompetent; Level 1 = Threshold, meaning that the student is able to recognize/ perform a few directed activities; Level 2 = Foundation, meaning that the student is familiar with more aspects, but they remain unrelated; the student can conduct many individual activities; Level 3 = Interconnection, meaning that the student can combine independent activities, draw conclusions; Level 4 = Contextualization, meaning that the student is able to understand complex causal relationships, can adapt activities; Level 5 = Expansion, meaning that the student is able to create new knowledge, develop simple procedures; Level 6 = Generation, meaning that the student is able to create new knowledge, develop innovative procedures, conduct independent research (IQM-HE, 2018).

The evaluation questions that should be answered by the screening are the following:

1. Regarding the competence levels of students in the 10th semester:
   a) Did, from the students' perspective, the students reach the intended competence levels?
   b) Did, from the teaching faculty's perspective, most of the students (75%) reach the intended competence levels?
   c) Did, from the students' perspective, the study programme promote the students' competences up to the intended competence levels?
2. Regarding the competence levels of students in the 12th semester:
   a) Did, from the students' perspective, the students reach the intended competence levels?
   b) Did, from the teaching faculty's perspective, most of the students (75%) reach the intended competence levels?
   c) Did, from the students' perspective, the study programme promote the students' competences up to the intended competence levels?

The students and faculty members participating in the survey filled an online questionnaire based on the Competence Screening Questionnaire for Higher

Education (CSQ-HE). Participation was voluntary and the screening took place on the university campus. Data from the online questionnaire was analysed using RStudio and Latex free software.

Results and Discussions

Table 1 describes the student sample and Table 2 describes the faculty sample.

Table 1. *Descriptive statistics for students*

	10th semester		12th semester	
	Male	**Female**	**Male**	**Female**
% of students	37%	63%	29%	71%
Average age	23	23	25	25
Std. deviation	2.82	2.97	1.96	2.58
Min. age	22	22	24	24
Max. age	25	24	26	26

Table 2. *Descriptive statistics for teaching faculty*

	Female	**Male**
% of faculty members	35%	65%
Average years of teaching	more than 6	more than 6
Std. deviation	3.2	3.35
Min. years of study	0 – 3	0 – 3
Max. years of study	more than 6	more than 6

The screening process included two subgroups of students: one in their 10th semester, represented by 15 females and 9 males; the other one at the end of their studies, in their 12th semester, represented by 15 females and 6 males. We also surveyed one group of faculty members, represented by 29 males and 16 females.

The evaluation of students' competences was based on 45 competences for the Veterinary Medicine study programme, grouped in 7 competence areas: personal; food hygiene and food safety; laboratory diagnostics; general clinics; surgery and anesthesiology; infections and obstetrics; socio-economic and scientific. In the following tables (1-4) we will present the specific results regarding food hygiene and food safety competence area.

The competences in food hygiene and food safety, cognitive and practical aspects reported by the students in the 10th semester are depicted in Figure 1 and Figure 2.

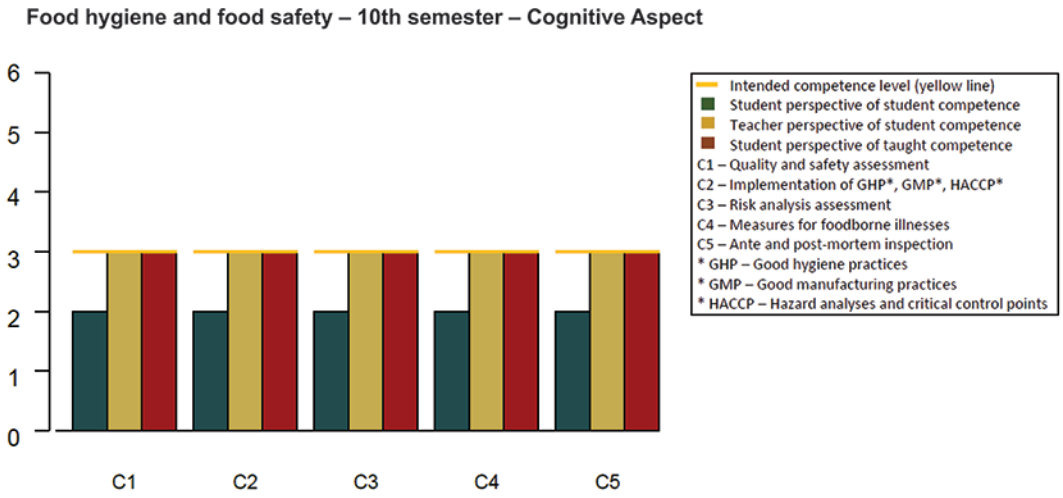

Fig. 1. *Food hygiene and food safety competences –10th semester, cognitive aspect*

The yellow horizontal lines show the intended competence levels students should acquire as a result of the study programme and can differ across competences.

For all competences in food hygiene and food safety, the intended level is 3. For all competences, students reported having acquired level 2. For all competences, the intended level was not reached.

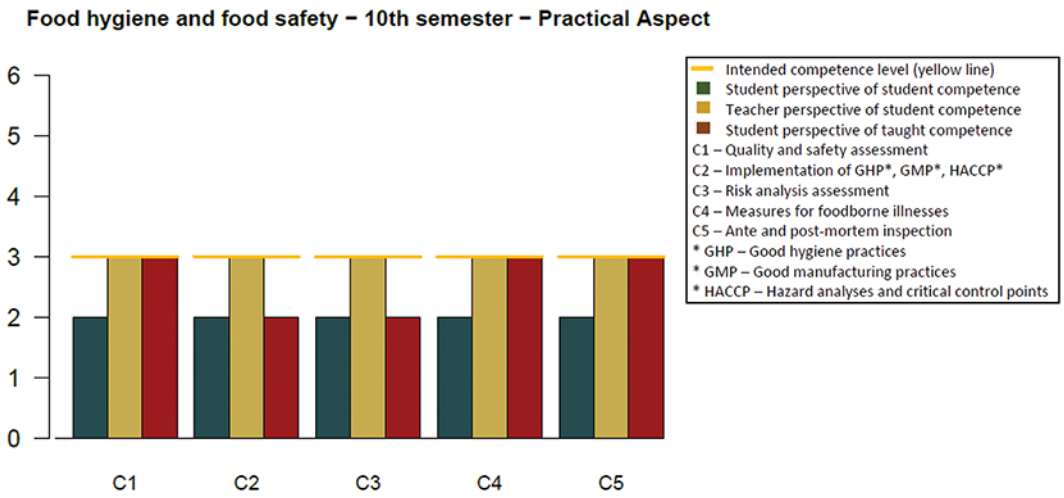

Fig. 2. *Food hygiene and food safety competences – 10th semester, practical aspect*

The mustard bars show the level which faculty members report that students have acquired. For all competences, faculty members reported that students have acquired level 3. The red bars show the level which students report that the study programme promoted students' competences up to. For two competences (C2 and C3), the students reported that the study programme does not promote students' competences up to level 3 (Figure 1 and Figure 2).

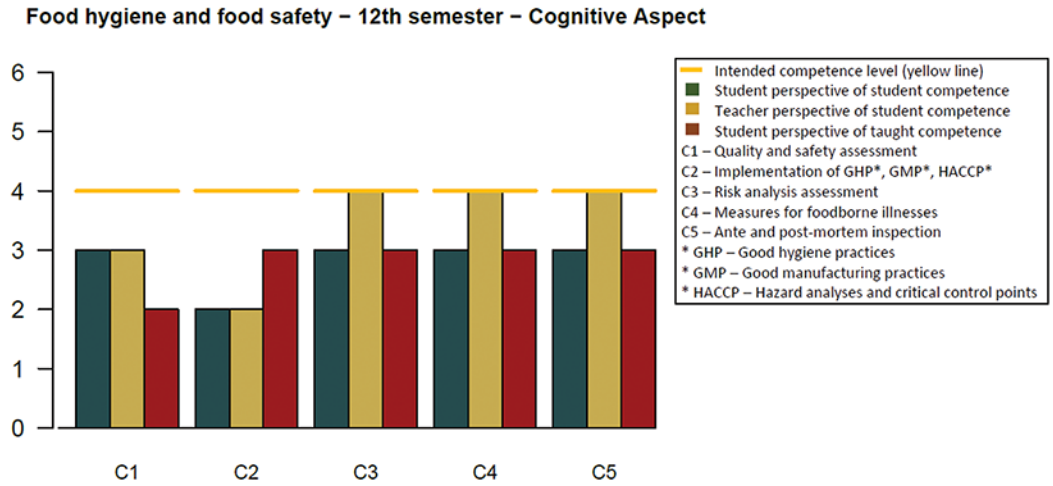

Fig. 3. *Food hygiene and food safety competences –12th semester, cognitive aspect*

The competences in food hygiene and food safety, cognitive and practical aspects reported by the students in the 12th semester are depicted in Figure 3 and Figure 4.

For all competences in food hygiene and food safety, the intended level is 4. For almost all cognitive competences, students reported having acquired level 3, except for competence C2, which means the intended level was not reached.

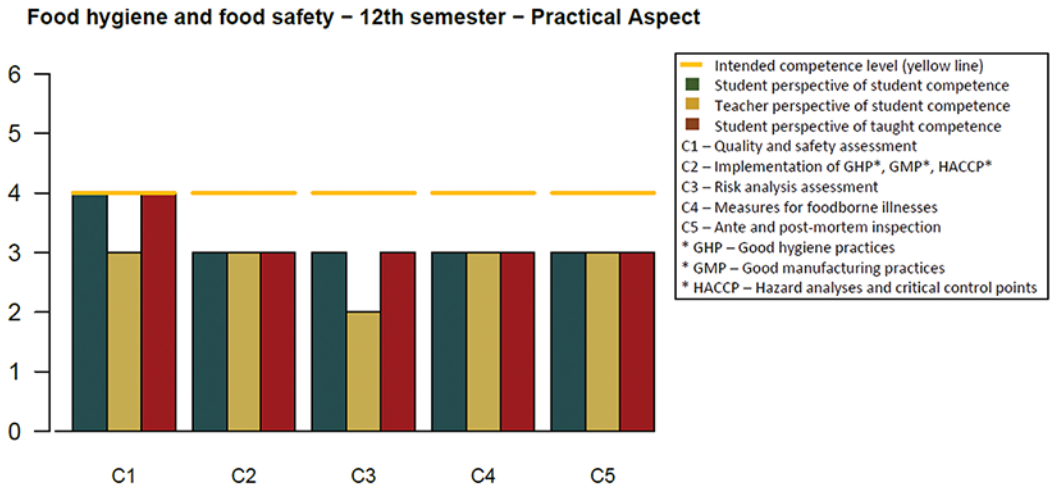

Fig. 4. *Food hygiene and food safety competences – 12th semester, practical aspect*

In case of practical competences, the students reported that only for competence C1 the intended level was achieved (20%). Only for competences C3, C4 and C5, on the cognitive aspects, faculty members reported that students have acquired the intended level (60%). Regarding practical aspects, faculty members reported that students did not achieve the intended level. For all competences, the students reported that the study programme does not promote students' competences up to

level 4 (Figure 3 and 4). Based on the analysis of the results of the competence screening, we established that there are many gaps between the intended and actual competence levels from the perspective of both students and faculty members. Our results are in accordance with the results of Zlatkin-Troitschanskaia et al. (2017), in a study regarding the assessment of student competences in German higher institutions. According to their study, the KoKoHs (Modeling and Measuring Competencies in Higher Education – Validation and Methodological Innovations project) program established huge deficiencies in student competences, and contributed to improving teaching and assessment methods in higher education institutions. Overall, the cognitive and practical competences were between foundation (2) and interconnection (4). The students' competence level ratings were lower than the faculty members' ratings by at least 1 level. There are some differences in competence levels between students in the 10th semester in comparison with students in the 12th semester. The reason for screening competences in the 10th and 12th semesters was to evaluate the progress achieved by students at the end of the study programme (12th semester) compared to students in the 10th semester. Before the survey, it was believed that students in the 12th semester would have achieved higher level of competence than students in the 10th semester. But, after the results were analysed, we observed that, generally, students in the 10th semester have achieved higher or at least the same level of competences as students in the 12th semester, with one exception: scientific competences. This means that either the 12th-semester students forgot some of the competences they had achieved by the 10th semester, or that they perceive of their competence levels to be lower than in the 10th semester because they now have more knowledge and skills.

All in all, the screening results show us that students in both the 10th and 12th semesters do not achieve all the intended competence levels defined in the competence model from both the students' perspective and the faculty members' perspective, especially concerning practical aspects. With few exceptions, the students' competence levels are lower than intended in the competence model. Some important critical aspects were identified based on the students' answers: the study programme did not foster students' competences up to the intended level in many competences, especially in the 12th semester and concerning the practical aspects. Also, the free text answers indicate that there is a gap between the intended competence level in this field and the actual teaching and learning process. Also, some students have achieved practical skills due to internships outside the faculty. As a general comment from both students and faculty members, more practical activities would be beneficial for increasing students' skills to prepare them to become good practitioners after graduation. Our central finding can be summarized as that there is a certain need for action in the area of how the competences are taught, especially concerning practical aspects. The results indicate that there is some dissatisfaction about the teaching of practical aspects in both the 10th and 12th semesters. Possible recommended measures are, on one hand, training for faculty

members in the area of practical teaching, and on the other hand, strengthening networks with partners from the field of working practice. Also, university experts, state veterinary services or the private sector could be invited to host lectures and practical demonstrations. The internship period (practical stage) of the study programme could be improved by allowing students to perform at least basic procedures themselves in all competence areas: clinical, laboratory, food safety, animal husbandry, etc. One suggestion was to implement an internship programme lasting one or two semesters, as is applied in other faculties in the EU or US. Besides, the coordinator should seek to create a dialogue with faculty members and students regarding enhancing learning strategies, teaching and assessment methods. Closer cooperation with the university career department could strengthen networks with external partners. In the end, the curriculum should be adapted and a new internship structure integrated. The responsibility for these changes must be agreed by all faculty members, starting with the management of the faculty, head of departments and coordinators of each discipline (Leticia-Concepción and Tójar-Hurtado, 2018).

Conclusions

There are many identified gaps between intended competences and competence levels stated by both, students and teachers. The study programme did not foster students' competences up to the intended level in all competences, especially in the 12th semester and concerning the practical aspects. For some practical competences, the levels achieved by students were higher than the taught level because of internship stages outside the faculty. Overall, the cognitive and practical competences were between foundation (2) and contextualization (4). The students' rates regarding competence levels were lower than the teachers' rates by, at least, 1 level. The real level of achieved competences is still not clear, for neither students or teachers. Students recommended more focus on practical activities, to prepare them for the veterinarian profession. There is a need for action in the area of how the competences are taught, especially concerning practical aspects. The screening procedure should focus more on better understanding of competence levels for both, students and teachers. Based on the results, the following recommendations were proposed: enhancing of teaching and assessment methods, learning strategies, curriculum; strengthening cooperation with partners from the private area: farmers, veterinarians, food processing units etc.; university experts, state veterinary departments and private sector could be invited for hosting lectures and practical demonstrations; the internship period (practical stages) of the study programme could be improved. Based on the outcome of our results, quality enhancement methods will be developed in the future. to increase teaching and learning strategies, but extensive and continuous screening of student competences should be realized.

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