Competency Frameworks: Which Format for Which Target?

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ABSTRACT

In veterinary medical education, it is now necessary to design competency frameworks (CFs) that list expected competencies at graduation. Three different CFs with different formats and contents have been published in Europe, such as the Day One Skills (DOS), the recommendations of the World Organization for Animal Health (OIE), and the Veterinary Professional (VetPro). In the current study, on the basis of a survey among Belgian veterinarians, a fourth document was designed that lists the necessary knowledge, skills, and attitudes grouped into families according to professional situations. The objectives of this study were to assess the perception of CFs by various categories of stakeholders, identify the possible uses of CFs, and determine whether one format should be preferred to another. We used a qualitative approach based on semi-structured face-to-face interviews with different stakeholders after they had reviewed the four different documents (CFs). This study showed that an obligation to design CFs was clearly perceived by academic and professional authorities. Teachers and veterinarians may be either enthusiastic or apprehensive about CFs, while students perceive the usefulness of the documents to plan and assess their learning objectives. Three main roles of CFs were identified: they can be used as communication tools, regulatory tools, or educational tools. However, not one of the documents used in this study was perceived to fulfill all roles. It is therefore likely that no one ideal document yet exists and a combination of formats is necessary.

Key words: competency, framework, veterinary, professional situations

INTRODUCTION

Veterinarians play an important role in five related fields of work: public health, bio-medical research, global food safety and security, ecosystem health, and the more traditional animal care.[1] As a consequence of societal needs and expectations, external demands on the profession are increasingly critical and far-reaching. Today, it is necessary for the members of the veterinary community to demonstrate the validity of their decisions[2] as well as provide accountability for their education.[3] Increased accountability has led to the need for more explicitly documented curricula and descriptions of the competencies to be attained in documents called competency frameworks (CFs).[4]

For medical doctors, different CFs have been published such as the Canadian Medical Education Directives for Specialists Roles Framework,[5] the six core competencies identified and described by the Accreditation Council for Graduate Medical Education,[6] and Tomorrow's Doctors.[7]

In veterinary medicine too, several CFs have been proposed. In Europe, three major documents have been published. The Royal College of Veterinary Surgeons (RCVS) has identified a set of expected competencies at graduation and has produced the Day One Skills (DOS) handbook.[8] That list of competencies has been officially recommended by the European Association of Establish-

ments for Veterinary Education.[9] The World Organization for Animal Health (OIE) has also identified a set of competencies that are required for veterinarians in the context of public health.[10] Recently, a Veterinary Professional (VetPro) CF was validated in the Netherlands.[3]

Those documents each have different formats. VetPro consists of a figure and a 250-word text describing 16 competencies organized in seven domains (veterinary expertise, communication, collaboration, entrepreneurship, health and welfare, scholarship, and personal development). DOS consists of a 1,200-word document with three core categories (general professional skills and attributes, underpinning knowledge and understanding, and practically-based veterinary competencies) that include, respectively, 12, 9, and 20 competencies. OIE consists of a 3,900-word document with two core categories (specific competencies and advanced competencies) that include, respectively, 11 and 8 sub-categories with a total of 70 competencies.

The term *competency* refers to the ability to integrate the knowledge, skills, and attitudes required to perform complex professional tasks.[11] Some authors consider that professionals have to manage complex problem situations that, though different, share common aspects and, as such, can be grouped into "families of professional situations."[12] For example, emergency situations (such as colic in a horse or gastric torsion in a dog) have many

Table 1: List of targeted participants in this study (*N* = 52)

Targets	*N*	ID
Teaching administration (Vice Chancellor)	1	VC
Deans (Veterinary School, Faculty of Science, Faculty of Informatics)	3	D
Presidents of professional associations (Association Vétérinaire Equine Française, Association Française Vétérinaire des Animaux de Compagnie, Société Nationale des Groupements Techniques Vétérinaires)	3	PA
President of a regulatory body (Ordre Vétérinaire de France)	1	RB
President of Académie Vétérinaire de France	1	AF
Trade union (Syndicat Vétérinaire de France)	1	TU
Teachers (veterinary) involved in veterinary education	10	VT
Teachers (non-veterinary) involved in veterinary education	4	NVT
Teachers (non-veterinary) not involved in veterinary education but involved in the design of CFs in their discipline	4	CF
Veterinary practitioners	12	PV
Students in veterinary medicine	13	ST

ID = role identification (the abbreviations used in the text to identify participants being quoted); CFs = competency frameworks

parameters in common that could lead to the idea that a veterinarian should be competent in managing an emergency. An emergency, as such, is considered a family of professional situations. As there is a risk that CFs are perceived by stakeholders as an endless list of know-hows, skills, criteria, and indicators without connection to the world of work, those authors have suggested that CFs should be built around those families of professional situations. Writing a CF would consist of identifying those families and associating them with the list of knowledge, skills, and attitudes required.[12]

As the format (short vs. long) and content (e.g., presence or absence of a description of families of professional situations) of CFs may vary, educators may question how to write an optimal CF. The objective of this study was to (1) assess the perception of CFs by various categories of stakeholders (students, veterinary practitioners, veterinary teachers, non-veterinarian university teachers, Deans, presidents of regulatory bodies, heads of professional associations, and trade unions); (2) identify the possible uses of CFs; and (3) determine whether one format should be used more than another.

MATERIAL AND METHODS

Documents
The VetPro logo and text (Document 1)[3] and the RCVS DOS (Document 2)[8] were translated into French. The French version of the OIE was provided to us (Document 3).[10] We also produced a new CF based on families of professional situations (Document 4) because such a document has not been published so far in veterinary medicine.

To write Document 4, veterinarians who work in the French-speaking part of Belgium were recruited. They were randomly selected within the list of registered veterinary practitioners and were interviewed by telephone.

Veterinarians working in universities or in administration were excluded from the survey. The telephone survey was performed between October 2010 and June 2012. The following questions were asked: (1) Which frequent problem situations do you encounter in your practice? (2) Which problem situations should a young graduate be able to manage? And (3) Which problem situations should a locum be able to manage? Responses were recorded on a standardized record sheet for later analysis. Two researchers read the transcripts of the interviews and examined data to identify categories of problem situations that are relatively similar though may be encountered in different practices or species. Telephone enquiries were stopped at the point of data saturation (the point at which the most recent interviews did not seem to make any substantial contribution to the data).[13]

Semi-Structured Interviews
Several stakeholders were given the four documents and were interviewed between October 2012 and March 2013. Purposive and convenient samples of participants were involved in the different stages of design or use of the CFs. Participants were ensured that interviews would be confidential. Sample size was justified by interviewing participants until reaching data saturation. To avoid bias, individuals who had been explicitly involved in the design of Documents 1 to 3 or had previous, direct, or indirect knowledge of Document 4 were excluded. Participants were recruited in Belgium, France, and Austria. All participants were contacted by E-mail and participation was requested on a voluntary basis. After agreeing to be recruited, participants were then exposed to the documents and interviewed. The list and number of participants is summarized in Table 1. Their role identification (ID) is provided in the table and used in the Results section to identify the participants being quoted.

Box 1: Examples of questions that were asked during the semi-structured interviews

Perception of CFs

What is your perception about the concept of a CF? Is it useful or necessary? How should it be designed? What are you expecting from a CF? What is the use of a CF?

Comparison of the different formats

Four documents have been provided: what are their different advantages, disadvantages, and uses?

For veterinary practitioners in particular: Would those CFs help you to better (1) identify the professional objectives you did not reach, (2) choose your continuing professional development courses, (3) communicate with students who spend external rotations in your practice, and (4) plan your re-orientation to another veterinary discipline?

For veterinary students in particular: Would those CFs help you to better identify (1) your learning objectives, (2) your professional objectives, (3) the contexts of the problems you will encounter in your studies and practice, (4) the learning objectives you did not reach, and (5) the learning objectives of external rotations?

CFs = competency frameworks

Table 2: Demographic characteristics of veterinarians according to the telephone enquiry

Total number of respondents	210
Sex	
Men	61.0%
Women	39.0%
Type of activity	
Small animals only	57.6%
Horses only	2.4%
Farm animals only	14.8%
Mixed practice	25.2%
Years in practice	
Mean	21.4 ± 11.2
Maximum	51
Minimum	1

A list of questions was prepared initially by the researchers. A semi-structured interview is flexible, allowing new questions to be brought up during the interview as a result of what the interviewee says. The interviews were audiotaped and then transcribed. Examples of questions that were asked are listed in Box 1. The researchers read the transcripts of the interviews. Data were examined line by line to identify the participants' descriptions of thought patterns, feelings, and actions related to the themes mentioned in the interviews.

RESULTS

Design of Document 4

A total of 213 veterinarians were interviewed by telephone. Only three refused to answer because of lack of time (response rate = 98.6%). Demographic characteristics of respondents are reported in Table 2. The mean duration of the conversation was 18.8 ± 9.3 minutes (*SEM*). This survey identified 12 families of professional situations and their description by veterinary practitioners, which are reported in Box 2. A document was then generated by the investigators who aligned those families with knowledge, skills, and attitudes. Table 3 shows how a family of professional situations is described and defined in terms of knowledge, skills, and attitudes. The whole document (with all 12 families) is available online as an addendum at http://dx.doi.org/10.3138/jvme.0413-062R1.

Semi-Structured Interviews

All the individuals who were contacted agreed to be interviewed. In the next sections, participant comments are identified by their professional status and function (ID role in Table 1) in brackets. Participants are numbered (e.g., the three Deans who were interviewed received the ID numbers D1, D2, and D3) to ensure that in a group where multiple people are represented, more than just one person's views are provided.

Perception of Competency Frameworks

The obligation to design CFs was clearly perceived by academic and professional authorities. The universities have to demonstrate that their curricula answer to the needs of the society; it is a question of accountability. One Dean commented, "In Europe, a common document would also fit a common vision of the countries of the European community" (D2). The participants also noted that the philosophy of teaching has changed:

> What the professor will have to teach is replaced by what the learner will have to be able to do. (VC)

> Universities [are] open to a larger public where it is no longer only important to know but also to do. (D2)

> European directives, political decisions, and quality processes (such as EEAVE) will enforce the design and use of competency frameworks anyway despite the possible obstacles or difficulties that might be encountered at the level of veterinarians and teachers. (D1)

Two veterinarians (PV1 and PV3) reported the same opinion that "the profession should be careful with CFs as those lists of objectives could be used in litigations by

Box 2: List of families of professional situations identified in the current study

N° 1—Regular consultations
N° 2—Basic surgery
N° 3—Medical and surgical emergencies
N° 4—Hospitalization
N° 5—Euthanasia
N° 6—Epizooties
N° 7—Consultation of a healthy animal or group of animals
N° 8—Prepurchase examination
N° 9—Management of sport animals
N° 10—Management of breeding animals
N° 11—Inspection and audits
N° 12—Administrative and financial management of a veterinary practice

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unsatisfied clients who would compare the service provided to those recommended by the list" (PV1). However, this opinion was not shared by other practitioners. Furthermore, all professional authorities and veterinarian teachers noted that CFs should be viewed as a positive tool: "A CF should rather be considered as a tool to improve good practices. It should be seen positively and not as a repressive mechanism" (RB). A president of a professional association also remarked,

> The veterinary profession is so complex that it cannot escape to guidelines like in medicine. If there is a risk that competency frameworks become a document legally used in litigation, there is also an obligation to answer to the needs of the society. A balance will be reached anyway thanks to future discussions between regulatory bodies and veterinary trade unions. (PA1)

A participant observed that to avoid the use of CFs in litigation, it is important to limit the level of details in the documents: "A competency framework must not be a description of the good practices and techniques. If such a level of detail is avoided, the risk will be low that it could be used as an opposable document in litigations" (PA2).

From the interviews, it appeared that there might be different types of perception among academics. They may be convinced that it is their responsibility to train students adequately: "When we deliver a veterinarian to the market, we must be sure that he has reached an adequate set of objectives" (VT4). Others may be more apprehensive; several reasons have been suggested:

> As long as the documents remain general, they are well accepted by teachers. Difficulty comes when it is a question of measurable outcomes. (CF2)

> Teachers might be uncomfortable to quit classical face-to-face teaching where they dispense knowledge more than competencies, and might fear learning objectives that necessitate implementing new teaching interventions which are more time and resource consuming. (NVT1)

Besides those internal constraints, there are also external ones: "Teachers and institutions might fear that measurable outcomes lead to a comparison between institutions' performances" (CF1).

When asked about the risk that CFs mostly refer to professional objectives and minimize the mission of universities to promote reflection and development of critical thinking, most interviewees acknowledged, after a closer look at the items described in the CFs, that the risk exists but is limited: "The documents explicitly refer to audit, management and research" (PA1). One teacher in basic sciences noted, "I have not had at all the feeling that the documents referred to a technical profession. On the contrary, I had the conviction that veterinary medicine was a science in itself, like physics or chemistry" (NVT3). She added that "competency frameworks could enable better integration of the disciplines, and participation of basic science teachers in integrative problem-based learning (PBL) sessions in later years will ensure that essential scientific approaches are maintained."

Several comments, both from veterinarians and academics, referred to the methods of creating CFs. For example, a veterinary teacher commented, "Designing a CF necessitates several preliminary steps where the needs of the country for veterinarians are assessed. For example, do we need so many small-animal veterinarians when there are so few large-animal practitioners?" (VT8). A Dean also remarked, "Several iterations are necessary" (D1). All interviewees agreed that the veterinary profession must be consulted, even if the last word should be from the teachers. It was also noted that a CF should be amended regularly: "For future students and employers, a description of the profession is important, especially since the veterinary profession changes very quickly. The exercise of job description should be done regularly" (PA3). In addition, one participant reported, "The CF must also be associated to a list of outcome measures that would be used to assess whether students have reached their objectives" (D1).

Potential Uses for Competency Frameworks
The interviews suggested that CFs can be used as communication, regulatory, and educational tools.

Table 3: Family N° 1—Regular consultations. This category refers to first-opinion consultations about common complaints such as diarrhea in dogs, dental malocclusion in rodents, colic in horses, or mastitis in cattle. Resources have been defined considering that this family of situations (regular consultations) leads to a medical treatment. Hospitalization and surgery are considered in other families of situations.

	Phone call and case history	Clinical examination	Diagnosis	Treatment	Follow-up
Description of the situation	Most often, owners call first to explain the case, but they can also come directly to the practice during consultation hours. The first useful diagnostic elements are often identified at the time of the phone call. The emergency of the case is assessed; the situation may also be unusual.	A general examination is performed, followed by special examination of relevant systems (respiratory, digestive, etc.)	Additional examinations/tests may be useful to confirm the diagnosis, clarify the prognosis, and guide the therapeutic choices.	First-line treatments are administered. Second-line therapeutic options are considered, taking into account the evolution of knowledge and techniques. It may be necessary to refer the patient.	Veterinarians keep in touch with the owner or request an update from him. They must often anticipate and appropriately advise the owners.
Resources			Students at graduation should know:		
General knowledge	– the major clinical signs – their significance – their differential diagnoses	– the rationale of the observations and tests performed for general examination and specific evaluation of systems	– the rationale of further investigations that can be conducted	– the indications and principles of medical and surgical therapy – the efficacy and safety of treatments – the drug legislation	– epidemiological concepts of risk, prognosis, and survival
Specific knowledge	– the specific etiologies – their epidemiology (frequency, risk, prognosis, and contagiousness)	– specificities of clinical tests according to specific anatomic, physiologic, and pathological differences	– the clinical tests' particularities in the different species, including sensitivity and specificity of the techniques	– the characteristics and sensitivities to treatment in the different species – the impact of medications on public health and environment – the prognosis of treatments	– the specific risk and prognostic factors – the possible complications – the prevention strategies
			Students at graduation should be able to:		
General skills	– communicate with the owner – identify the unusual nature of the situation	– perform the various tests of general physical examination	– perform basic additional tests (laboratory analyses, X-ray, ultrasound)	– manage logistics and environment	– adequately inform the owner (taking into account the present situation and the future)
Specific skills	– search and quickly evaluate scientific information when the situation is unusual	– restrain animals – conduct special examinations of the different systems – make initial decisions by mobilizing knowledge (background)	– perform additional tests related to specific etiologies – make a diagnostic decision by mobilizing knowledge (background) and adopting a critical attitude to scientific information (foreground) – refer adequately to specialists for diagnosis if necessary	– administer medications – make a decision by mobilizing knowledge (background), taking into account the context (ethical, professional, economic) and technical aspects (infrastructure, material), and adopting a critical attitude toward scientific information (foreground) – refer adequately to specialists for treatment if necessary	
			Students at graduation should be:		
Attitudes	– critical toward information given by the owner – quiet in case of unusual situations – empathic – convincing				

Communication tool

Most interviewees admitted that Document 1 (Vet-Pro) was a short, well summarized communication tool for the lay public. Its simplicity was also perceived as its weakness; several interviewees found the document too general: "This framework is very general and could also be generic of every other discipline" (VC). Document 2 (DOS) was perceived as a more detailed summary that usefully described the veterinary profession, showing several facets of the job and its polyvalence. Document 3 (OIE) was perceived in two opposite ways. On the one hand, representatives of the profession, academics, and regulatory bodies described the document as nicely written and a good description of the veterinary profession, and even to non-veterinarians it showed the important role of the veterinary profession in public health. On the other hand, veterinarians and students found the document much more difficult to read, with a large international and legislative scope that is too orientated to public health medicine and epizooties and, as such, does not correspond to their practice (veterinarians) or their initial interests (students). According to all veterinary practitioners, Document 4 (families of situations) had several advantages. The document was clear and provided examples. It also provided a good summary of the profession, with an interesting description of knowledge, skills, and attitudes and a clear link to the chronology of the steps required for the management of a problem situation. This practical aspect also pleased most students.

Regulatory tool

The role of CFs as regulatory tools was only reported by interviewees for Document 3 (OIE). This document describes the societal mission of veterinarians in public health:

> In some way, it is a competency framework for decision makers. It could also be considered as the common competencies required by the society for all veterinarians, in other words their social role. If this concept is true, it might have political implications in the future in that the society would accept to finance that common part of education but that financing of the specific part (companion animals, equine) would be left to the learners. (PA1)

Educational tool

Document 1 (VetPro) was found to be of interest to all representatives of the profession and most non-veterinarian teachers in demonstrating the large range of competencies required and the importance of developing communication and management skills in the veterinary profession. However, most interviewees found it too general, in comparison to the other documents, to be useful for planning learning objectives and regulating educational interventions.

Regarding Document 2 (DOS), veterinarians and students recognized that it could be useful to plan and assess learning objectives. However, several interviewees, including teachers, suggested that a deeper level of description would be useful: "This document is an academic competency framework, corresponding to a list of too general objectives. It is too vague to be used to design teaching methods" (VT9).

Very few interviewees found that Document 3 (OIE) would be useful to plan veterinary teaching, except for the public health components.

Both veterinarians and students found that Document 4 was useful to plan learning objectives and proposed that Document 4 should be supplied to students as soon as possible and at several stages of their curriculum as reminders. Some academics expressed the same opinion, declaring, "It is a tool to indicate to learners what is expected at graduation" (VT5). However, some also noted, "… this type of CF is highly ambitious and requires a closed collaboration between internship supervisors, veterinary practitioners, and teachers. Alone, the faculties will not be able to ensure such training" (VT7). Several teachers expressed the idea that "students would probably prefer the Document 4 to interact with their teachers and training supervisors" (VT4). However, the same interviewees considered that because Document 4 is an operational framework that prepares students more for professional situations, there is the risk of an overly professionalized training.

Common issues about CFs were reported. The competencies requiring development are often so broadly described that the document remains useless for teachers of basic science. One teacher in biochemistry mentioned, "When I read the DOS document, I find myself only at line 2.1.1. referring to 'the sciences on which the activities of veterinary surgeons are based.' It is not very helpful to plan my teaching objectives" (NVT1). To become useful, several solutions were suggested such as the help of clinicians or the informative role that integrated PBL might play in providing non-veterinarian teachers with examples of real professional situations.

Optimal Format for Competency Frameworks

All interviewees were unanimous that no document was optimal: the ideal document would result from the combination of several CFs and the targeted role.

Other comments referred to the level of detail available and the vocabulary used. One Dean reported, "It is important not to detail too much at the beginning to have a broader view of macro-competencies, then to zoom in on more details and expand the different situations to the different layers from undergraduates to postgraduates and specialists" (D1). Another Dean said, "Definitely, it is important to find the right level of detail for the target. It must be understandable, especially if you are not a veterinarian" (D2). An interviewee noted, "An explanation of the context with examples is useful for people to understand what the framework talks about" (VC). Another interviewee commented, "The vocabulary that is used is sometimes not clear and designers of frameworks should be attentive to provide understandable definitions." (D2). It also appeared that the accuracy of the words used to describe the competencies was important, especially since these competencies are linked to measurable outcomes. For example, one interviewee reported, "A sentence like 'the learner should understand' is rather general and does not necessarily indicate how this can be assessed" (CF2).

DISCUSSION

The high response rate and quality of participants in this study demonstrate the interest for the subject. All participants were aware of the changing demands of society and the call for veterinary medical curricula that can deliver competent veterinarians. However, although qualitative research methodology justifies the sample size by data saturation, there is always a possibility that this data does not represent the true spectrum of opinions on this topic, especially since it is not easy to recruit large numbers of participants in some categories (such as Deans, vice-chancellors, and presidents of regulatory bodies). Another possible limitation of our study is that we have focused our comparison on CFs that are used in Europe.

Perception of Competency Frameworks

Our study showed that CFs can be perceived differently by different categories of stakeholders and by different individuals within categories.

Teachers may be more or less enthusiastic regarding CFs, a finding that is reported in the educational literature.[14] The educational climate is usually regarded as a necessary first step toward implementing a reformed curriculum.[15] Enthusiastic teachers develop new interventions and change their teaching practice in a constructive way toward the fulfillment of CFs; this is called *instrumentation*. Less enthusiastic teachers may try to change the framework to adapt it to their own practice; this is called *instrumentalisation*.[16] Several hypotheses have been suggested to explain teachers' apprehension of CFs, including the doubt concerning long-standing educational interventions or programs, the fear that decisions are being made by professionals not directly involved in education, and the risk of weakening academic freedom of action and reflection.[17] Self-satisfaction with teachers' implementation of a competency-based curriculum can also be variable and subjective. A recent study conducted in a German medical school concluded that teachers perceived the implementation as "moderate" while students thought that it was less successful than the faculty did.[18]

In our study, the fear was also raised that overly detailed CFs might enable direct comparison between institutions. A model of quality assurance where the output of education, in terms of learning outcomes, is as important as or more important than the input might not be well accepted in some European countries. However, in other countries it is well recognized that the quality of teaching must be measured against what learners know, understand, and can do at the end of their courses and that those attributes are the first criteria used by employers and the society in general.[19,20]

One other argument commonly raised against CFs by academics is that they are too oriented toward professional skills rather than scientific skills, while the mission of universities is to train scientists.[18] This is linked to a philosophical debate outside the scope of this article where universities feel that utilitarian views of their role threaten the ideal of disinterested intellectual inquiry.[21] This argument was also identified in the current study. Interestingly, several interviewees suggested that in the documents, and in particular those which were more detailed, it was obvious that the scientific approach was well taken into account. Furthermore, one academic suggested that CFs enable integrative learning and therefore better integration of basic sciences.

Veterinary practitioners may also be apprehensive and fear that CFs could be used as guidelines that dictate individual clinical practice and define negligence. Again, this concern is not specific to the veterinary profession.[22] However, most representatives of the veterinary profession answered that accountability was essential and that any initiative to improve the profession should be promoted.

Those apprehensions of teachers and veterinarians regarding reports of clients may be due to a more general process present at different levels of society. In fact, the design of CFs consists of making elements which are explicit, public, and standardized rather than implicit, private, and largely contextualized. This step from implicit to explicit usually raises questions and debate.[23]

In our study, four suggestions were made to limit the problems of perception by veterinarians or teachers. First, a CF must not be written with the same level of detail as guidelines since doing so would increase the risk of their use in litigation. Second, a CF refers to a set of knowledge, skills, and attitudes, which are to be developed, rather than to specific learning outcomes, which should remain at the discretion of the teachers. Third, it is also important to find the appropriate level of detail depending on the intended use of the document. Finally, a consensual approach seems essential to solving the issues that can occur regarding the design, promotion, and use of CFs.[14,18]

The importance of consensus was demonstrated by the development of the DOS document[8,24] and, more recently, by the ProVet framework[3] that is based on the analysis of focus-group interviews with veterinarians and clients and subsequently validated in a Delphi procedure with a panel of experts, representing the full range and diversity of the veterinary profession. There are other examples of the role of panels of stakeholders in the design of CFs in medical education[25] and in other disciplines.[18] In the current study, all interviewees agreed that the veterinary profession must be consulted.

Though we might recommend including several stakeholders in the design of CFs, there are probably colleges or universities in Europe which would consider it unnecessary to include practitioners in the discussion and would feel confident in producing a document themselves. However, in 2001, Walsh et al. in the US noted that designing a curriculum and defining attributes at graduation are two different things. Educational programs, especially those in the health professions, have most often been designed from the bottom up without input from the users (students and residents) or the professionals (veterinarians). These authors used an interesting methodology where the faculty members designed an initial list of attributes that was subsequently assessed by students and residents.[26]

Furthermore, they estimated that two other steps were essential to ensuring that the attributes attained by students at graduation will meet the expectations placed on them as members of the veterinary profession and the

needs of society: (1) establishment of an internal assessment process to ensure that students are meeting the expectations of the faculty of the college or school and (2) establishment of an external outcomes assessment to ensure that the goals of the veterinary degree program are appropriate and being met.[27]

In the current study, several teachers were aware of the importance of assessment. However, we have not identified a real enthusiasm to align outcome measures along the attributes and rely on external assessment to further develop the veterinary degree program and refine the attributes expected of its graduates. Several challenges have been associated with the assessment of competencies, especially those called *professional competencies*, including agreement as to their definition, the fact that they are frequently complex and require multiple integrative assessments, and the ability and/or desire of faculty to teach and assess these competencies.[28]

Uses of Competency Frameworks

Several roles and characteristics have been described for a CF.[29] It can be used as a communication tool for providers of education, employers, and the lay public. As such, it must be easily understandable. It can be an institutional tool to criticize, improve, and adapt curricula to the changes of society, science, techniques, and the profession. It can be a document to compare curricula between institutions. Learners can use it for choosing studies or continuing-education programs, for self-assessment, for planning extramural studies, and for presenting their training to possible employers. Our study has shown that any of the four documents could fulfill all those roles. The shortest versions were perceived to be useful for communication with the lay public or the political authorities. They were also useful to depict directions for the future, such as the necessity to include management and communication in the veterinary curriculum. They were less useful for planning student's learning objectives and practitioner's participation in education. The OIE framework appeared to be a useful document to describe public health medicine and inform decision makers. CFs become useful for learners as soon as a deeper level of detail is provided, and learners can perceive clear and accurate learning objectives. Interestingly, in the UK, a survey investigated fourth- and final-year students' perceptions of the DOS guide[24]: while almost all respondents were aware of the DOS guide, their use of it was low. According to the authors, one possible explanation was that many had not realized its potential; some of the final-year students specifically commented on the fact that they had not received an induction. In our study, students also suggested that the document should be supplied early on in the curriculum and that reminders should be provided afterwards. In the UK study, the authors also suggested that the DOS guide would be useful before clinical placements in helping students to identify appropriate learning objectives and monitor their own progress.

Formats of Competency Frameworks

Documents 1 to 3 (VetPro, DOS, and OIE) have been published and validated. The format of Document 4 is based on the concept of families of complex situations as developed by Perrenoud et al.[12] Designers of frameworks must identify the most representative situations that may be encountered in professional life. Then, CFs should be constructed by associating knowledge, skills, and attitudes directly with the families of situations or by defining transverse competencies which can be exerted within the context of these families. The importance of examples and context was also raised in our interviews, particularly by students and veterinary practitioners. However, the link between competencies and situations remains a matter of debate.[30]

In this study, to design a CF based on grouping professional situations into families, a survey was conducted. Practitioners spontaneously identified groups of situations that corresponded to specific and complex problems of their daily professional life. They also described the constitutive elements of the families of situations by providing examples and descriptions of daily situations. However, the resources (knowledge, skills, and attitudes) were generated by the investigators. Therefore, at this stage, Document 4 may be considered only as a prototype that will need to be validated by future users. However, the objective of this study was not to validate Document 4 but to assess the perception of a fourth type of format. To maximize objectivity, the origin of Document 4 was never revealed during interviews, and no member of the authors' institution who was aware of Document 4 was interviewed.

CONCLUSIONS

Though the obligation to design CFs is clear for academic and professional authorities, CFs are perceived differently by different stakeholders. Teachers and veterinarians may be either enthusiastic or apprehensive about CFs while students seem to perceive the usefulness of the documents to plan and assess learning objectives. Three main roles of CFs were identified: they can be communication, regulatory, or educational tools. However, not one of the documents used in this study was perceived to fulfill all these roles. It is therefore likely that, so far, no ideal document exists and a combination of formats will be necessary. It also seems important, as a first step in the design of CFs, to think about the future role and use of the document.

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