Informative Evaluation of the Teaching Skills of the Faculty at Alfort Veterinary School

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RÉSUMÉ

Une méthode quantitative d'évaluation informative des activités pédagogiques a été élaborée en utilisant une enquête s'adressant à 33 experts. Elle repose sur l'évaluation par les étudiants et un binôme de collègues des quatre phases de la démarche pédagogique à l'aide de divers types de questionnaires: analyse des besoins en formation, élaboration des objectifs d'apprentissage, réalisation de la séance d'enseignement et contrôle des acquis des étudiants. L'évaluation des enseignants est facultative et les résultats sont strictement confidentiels. Les résultats de l'application de cette méthode pendant trois ans à l'École vétérinaire d'Alfort sont présentés et commentés. Chaque année, un bilan a permis de modifier certains points. À l'heure actuelle, on peut considérer que les questionnaires d'évaluation des cours et des travaux dirigés sont validés alors que ceux relatifs aux travaux pratiques et aux cliniques doivent être soumis à un plus grand nombre de séances. Parallèlement, une réflexion pour aboutir à partir de cette méthode d'évaluation informative à une méthode d'évaluation promotionnelle est en cours.

ABSTRACT

A quantitative method for the informative evaluation of teaching activities was devised using a survey from 33 experts. It is based on an evaluation, by students and two peers, of the four steps of the instructional methodology: analysis of training needs, statement of learning objectives, delivery of teaching session, and testing of student performance. Faculty evaluation is optional, and results are strictly confidential. Results of a three-year trial of this protocol at the Alfort veterinary schoolare presented and discussed. Each year the method has been assessed and some changes have been implemented. It is now felt that evaluation questionnaires for lectures and tutorial sessions have been validated, while those for laboratories and clinical teac hing have to be tested through a larger number of settings. A the same time, a change from informative to summative evaluation is under consideration.

INTRODUCTION

Evaluation of teaching and of teachers has progressed in recent years. In North America, a 1993 survey reported that administrative evaluation strategies were frequent in veterinary education.[1] They are also widely used throughout the European veterinary teaching system, as was shown by a survey conducted by the European Veterinary School Association among 79 of its schools: three-quarters of the 34 responding schools indicated that they were currently conducting some evaluation of teaching or of their faculty.[2]

This figure should increase in the future, since one of the guidelines published by the European Advisory Committee on Veterinary Training[3] is that "An evaluation procedure of teachers and teachings by students should be planned."

The administrative evaluation of teaching at the École vétérinaire d'Alfort (EVA) officially began in 1986. Questionnaires are completed by students and results are made available to students and faculty staff. The procedure has been sporadically used and tested for some years and is now systematized.

In 1998, an educational seminar about teachers evaluation was held, to which all faculty members and some students delegates were invited. At this seminar it was decided that a series of guidelines of good practices in veterinary education would be published, to be followed by the implementation of an administrative evaluation of teaching faculty. The guidelines were produced during the 1998/1999 academic year, while the school's educational committee was asked to create a methodology for a quantitative and informative[a] evaluation of the faculty's educational activities.

A survey based on the Delphi method was then implemented, from March to September 1999, to validate and complete these propositions, which also included data from the literature.[1,4–11] The method thus established[12] has been used at EVA during three academic years in order to improve and validate the questionnaires.

This article discusses how the method was developed and how it has been used for three years.

DEVELOPING THE EVALUATION METHOD

Materials and Methods

Methods – The method used for the survey is the Delphi method, described by Helmer[13] and Dalkey and Brown.[14] It is based on individual and anonymous consultation of a group of experts on a list of items for the purpose of establishing a positive consensus on these items. Experts are first asked to rate each of the proposed items on a scale from 0 to 10 and to provide open comments, particularly when they disagree on a given proposition (with a score below 5). After a first round of consultation, it may be necessary to conduct other surveys, each including the data gained from the previous one, until a consensus is reached. The Delphi method has been used in many fields,[15–20] including veterinary education.[21] Its advantages and limits have been discussed.[22]

Materials – The initial document submitted to experts was made up of 16 items, four of which included several subitems. Following the first phase of the study, a new document with only 14 items was produced and sent out to experts. These 14 items are listed in Table 1.

Experts – In all, 33 individuals from six different countries were approached. All have a specific interest in educational matters and a direct involvement in or responsibility for educational affairs in their institutions. The group includes four medical school faculty members in charge of educational matters; 14 veterinary school or veterinary college faculty members, including those in charge of educational matters; and 15 deans of academic affairs from various institutions of higher education administered by the French Ministry of Agriculture.

Table 1: Items submitted to experts after Phase 1 of the study

Number*	Text of the Item
1	Quantitative evaluation of educational activities must address the actions of individual faculty members in the following four areas: analysis of training needs, characterization of learning objectives, delivery of instruction, and testing of students' performance.
2	Other educational activities (involvement in the school's educational affairs, research and publication in education sciences, etc.) should be considered only for summative evaluation.
3	If a total score of 100 is given to a faculty basic educational activities, the following scores will be assigned to each of the four steps of the educational process: Analysis of training needs: 12.5 Characterization of course objectives: 12.5 Delivery of instruction: 50 Testing of students' performance: 25
5	The complete quantitative evaluation of a faculty member's educational activities is based evaluation by both students and by experts (specialists in pedagogy and peers).
6	An incomplete informative evaluation process, for instance, one that does not include evaluation by experts, may still be used if its incompleteness is noted.
7 (a)	Students' participation in the informative evaluation of faculty is requested for only two of the four areas: delivery of instruction testing of students performance
(b)	In the case of areas evaluated by both students and experts, the total score gives equal weight to the two groups' scores.
8	For informative evaluation purposes, a faculty member should be evaluated on the type of teaching session (lecture, laboratory, etc.) for which he or she is most often responsible in terms of hours per student. In addition, the faculty member can also choose to be evaluated on another type of teaching session.
10	If the type of teaching session chosen for evaluation is a lecture, and assuming that the total score would be /50 (see item 3), the following scores will be assigned: Instructional qualities: 24/50 Content of lecture: 26/50
11	Referring to the instructional features of a lecture, the scores that should be assigned to each of the items are as follows: Communication skills: 6 Lecture course: 6 Instructional aids: 6 Attention to students: 6
12	Within a single item of the lecture evaluation, all sub-items have the same weight.
13	Among the instructional features for a tutorial session, if the total score is /50 (see item 3), the scores that should be assigned to each of the items are as follows: Communication: 6.5 Course of the tutorial session: 6.5 Animation of the session: 14 Instructional aids: 6.5 Attention to students: 6.5 Contents: 10
14	Within a single item of the evaluation of a tutorial session, all sub-items have the same weight.
15	For the evaluation of students' performance, the scores assigned to each item are as follows: Organisation: 7 The test itself: 18
16	Within a single item of the evaluation of students' performance, all sub-items have the same weight.

* N.B. The original numbering of items has been retained; items 4 and 9 were removed from the questionnaire for Phase 2.

RESULTS

Phase 1

Eighteen of the 33 experts completed the first survey. For each of the 16 propositions, the average grade is indicated in Figure 1.

The analysis of answers to open and closed questions led to the alteration of several propositions and the deletion of propositions 4 and 9, dealing with summative evaluation. The 14 propositions listed in Table 1 were then developed and sent to the experts for Phase 2.

Phase 2

Among the 18 experts who responded in Phase 1, 15 responded in Phase 2. The average grade for each of the remaining 14 items is reported in Figure 1.

Figure 1 also shows the changes in the average grade for each item from Phase 1 to Phase 2. For two of the items, the average grade has decreased (by 0.6 for proposition 2 and 0.8 for proposition 6). For the other 12 items, it has increased, sometimes significantly (e.g., by more than 2 points for items 8, 11, and 16).

Tables 2–4 list the proposed items and sub-items for the evaluation of lectures, tutorial sessions, and student assessments.

Table 2: List of items proposed for the evaluation of a lecture and score assigned to each group of items

Items	Scores
Communication	6
The volume of the voice makes it clearly audible	
The delivery speed is correct	
The articulation of words is correct	
The modulation of the voice is adequate	
The teacher makes visual contact with each part of the audience	
The body posture makes the teacher look lively	
Course of the lecture	6
An introduction has put the topic in context	
The teacher has presented the plan and has come back to it regularly	
The teacher has presented the learning objectives during the session	
The presentation is understandable	
The teacher has emphasized the important points	
Questions are answered in a satisfactory way	
An appropriate recapitulation has been made at the end of the session	
Educational aids	6
The quality of the documents supplied (hand-outs, copies of overhead projection documents or slide texts, etc.) is satisfactory	
The documents are available and utilized during the session	
The quality of overhead projection documents is adequate	
The overhead projection documents have been used correctly	
The use of slides is satisfactory	
The use of videos is satisfactory	
The use of the board is satisfactory	
Attention to students	6
Information has been supplied in advance: topic, lecturer, etc.	
The schedule has been respected	
The teacher pays attention to students' questions	
The teacher is available to help students who request it	
Content of the lecture	26
Compared to the learning objectives, the content of the lecture gives the impression that	
Enough information is provided	
The information provided is well chosen	
The information provided is up to date	
The information provided is well organized	
The lecture gives the impression that the teacher has taken into account related courses given by other departments	
At the end of the lecture the auditor has clear ideas about the lecture topic	
Total	**50**

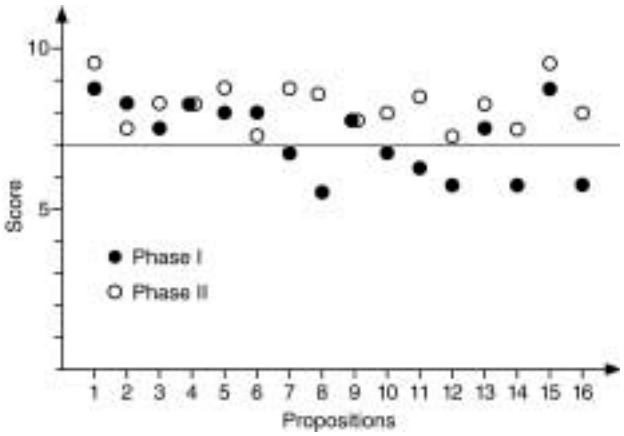

Figure 1: Per-item score changes from Phase 1 to Phase 2

Table 3: List of items proposed for the quantitative evaluation of a tutorial session and scores assigned to each group of items

Item	Score
Communication	6.5
The volume of the voice makes it clearly audible	
The delivery speed is correct	
The articulation of words is correct	
The modulation of the voice is adequate	
The teacher makes visual contact with each part of the audience	
The body posture makes the teacher look lively	
Course of the tutorial session	6.5
An introduction has put the topic in context	
The teacher has presented the teaching objectives during the session	
The teacher has outlined the topic's relations to theory	
An appropriate recapitulation has been made at the end of the session	
Organization of the session	14
The teacher has moderated the discussion well	
The teacher has made sure that all students participate	
The teacher asks stimulating questions	
The teacher encourages students	
The teacher helps students to find answers by themselves	
The teacher helps students to learn from one another	
The teacher shows what correct answers are	
Instructional aids	6.5
The quality of the documents supplied is satisfactory	
The documents are well suited to the learning objectives	
The quality of overhead projection documents is adequate	
The overhead projection documents are used correctly	
The use of slides is satisfactory	
The use of videos is satisfactory	
The use of the board is satisfactory	
Attention to students	6.5
Information has been supplied in advance: topic, instructor, etc.	
the schedule has been respected	
The teacher is available to help students who request it	
Contents of the session	10
The session has been organized to promote small group study of one or several cases or problems	
The case(s) presented is/are well suited to the learning objectives	
Motivation factors (professional set up or others ...) have being used by the teacher	
Total	**50**

Table 4: List of items proposed for quantitative evaluation of a student performance test and scores assigned to each group of items

Item	Score
Organization	7
Information about test date and time	
Time allotted to the test	
Information about test modalities	
Information about the test's relative value within the course	
Information about the marking system	
A corrected version has been made available immediately after the test	
Later, an analysis of the responses has been proposed	
Content	18
Definition of the learning objectives related to the test	
Conformity between test questions and learning objectives	
Questions are understandable	
Satisfaction as to the difficulty of questions	
Satisfaction as to the amount of reflection needed to answer the questions	
Proportion of the course objectives covered by the questions	
Pertinence of the grading system	
Total	**25**

DISCUSSION

At first the Delphi survey was intended for both informative evaluation, designed to collect useful data for faculty willing to improve their teaching, and summative evaluation, designed for use in promotional grading. However, responses to Phase 1 have shown that the coexistence of these two types of evaluations led to unnecessary complexity and posed a risk of confusion in understanding the criteria and determining answers.

It was therefore decided to limit Phase 2 to informative evaluation. Specific questions about summative evaluation (questions 4 and 9) were removed and experts were informed that the sole objective of the second group of items was informative evaluation. Considering the number of non-responses, the results cannot be considered anything more than the leading opinion of a group of French-speaking experts questioned about informative evaluation.

Figure 1 shows that at the time of Phase 2, the average score per item (or group of sub-items) is always higher than 7 and that for 12 items out of 14, it has increased from the first to the second phase. These scores show the consensus of a majority of experts on all of the items.

The average score has decreased for two items (2 and 6). These two had a high score at the end of the first phase: 8.06 for proposition 2, 7.88 for proposition 6.

Item 2's average grade has dropped from 8.06 to 7.46. This change can be explained by the wording of the item, which was reversed from Phase 1 to Phase 2. The initial item indicated that "complementary educational activities (being part of the educational affairs in the school, research and publication in education sciences, etc.) are worth being considered." Because of the change to informative evaluation only for Phase 2, and because of one of the expert's comments, it was proposed in Phase 2 to take such activities into account only "for summative evaluation."

For item 6, the average grade fell from 7.88 to 7.08, although there was only a change in wording. Based on the experts' responses for Phases 1 and 2, it appears that the difference comes from one of the experts who gave this item a 10 during Phase 1 and a 3 during Phase 2.

The only other items with an average grade between 7 and 8 are items 12, 14, and 16. These actually represent the same item, applied to lectures (item 12), tutorial sessions (item 14), and student assessment modalities (item 16). The common wording is as follows: "within the same item, all sub-items have the same weight."

This type of proposition has the merit of simplicity, but this may potentially alter its truthfulness. It was accepted by a majority of experts, refused by one (grade 0), and criticized by some. Some of the latter proposed using different grading systems for the sub-items in evaluation of lectures, tutorial sessions, and student assessment modalities, but it has not been possible to reach a consensus. We therefore were unable to propose a different grading scale that might have had a reasonable chance of acceptance.

For these reasons, a third run was considered superfluous, and it was decided instead to pilot-test the method as it was after the first two rounds of consultation. This method has been used each year since the 1999/2000 academic year. The second part of the article describes its use during the past three academic years (1999–2002).

THREE YEARS' USE OF THE EVALUATION METHOD

The 1999/2000 Academic Year

During the 1999/2000 academic year, 22 teaching sessions were evaluated (see Table 5), 10 by students only and 12 by students and faculty peers.

These 22 sessions involve 18 faculty members, since four of them have been evaluated twice—three for a lecture and a tutorial session, one for two lectures—five months apart. Most (15/22) of the evaluated sessions were lectures.

Eleven lectures have been evaluated by students and two peers; scores are reported in Figure 2. Six times out of 11, students' scores are higher than peers'; the differences are clear-cut in these cases. When peers' scores are higher than students', the difference between the scores is small.

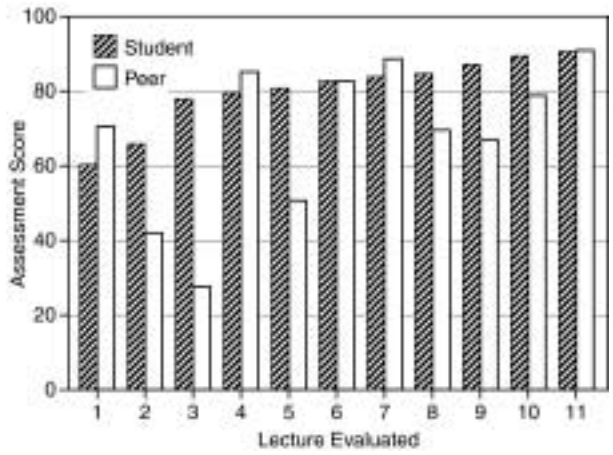

Figure 2: Matched scores for 11 lectures that underwent both student and peer evaluation

Four faculty members underwent two different evaluations during that academic year; corresponding scores are reported in Table 6. It can be seen that students' scores do not differ much from one evaluation to the next, even though the teaching sessions evaluated are different (lecture versus tutorial session). In no case did the score increased from first to second evaluation.

At the end of the 1999/2000 academic year, results were assessed by the five evaluating peers, and the following decisions were made:

- To increase the number of evaluating peers from five to seven by co-opting two new colleagues who had had very good scores.
- To alter the questionnaires slightly so that some of the items would be somewhat different for students and peers. As an example, the peer questionnaire no longer proposes, under the title "Attention Given to Students," the item "Information has been given in advance ..." (since evaluating peers are in no position to score this item), but it now lists the item "Choice of instructional aids is relevant," which does not appear on the student questionnaire.
- To reformulate some of the calculation modalities for average score: for example, for student scores, items with a majority of students responding "not applicable" will no longer be included in the calculation.
- To prioritize validation of tutorial sessions, practical sessions, and clinical teaching questionnaires for the next year.
- To request that evaluating peers schedule a short interview with the faculty member being evaluated, following the teaching session, to allow for the collection of addition information (but not to comment on performance).

Table 5: Number of sessions evaluated at the Alfort veterinary school during a three-year period

	Evaluation by Students				Evaluation by Students and Peers			
	1999/2000	2000/2001	2001/2002	Total	1999/2000	2000/2001	2001/2002	Total
Lecture	4	1	4	9	11	3	2	16
Tutorial session	3	9	7	19	1	3	3	7
Practical session	1	2	–	3	–	–	–	–
Clinical session	2	1	–	3	–	1	–	1

Table 6: Scores obtained by four faculty members who underwent two evaluations during the 1999/2000 school year

	Type of Teaching Session	Time Between the Two Sessions (months)	Students' Scores	Peers' Scores
Faculty Member #1				
First evaluation	Lecture	1	30.57	18.30
Second evaluation	Tutorial session		26.75	
Faculty Member #2				
First evaluation	Lecture	1	32.18	28.34
Second evaluation	Tutorial session		29.54	
Faculty Member #3				
First evaluation	Tutorial session	4	34.41	20.50

Second evaluation	Lecture		33.03	
Faculty Member #4				
First evaluation	Lecture	5	41.85	34.28
Second evaluation	Lecture		41.69	

The 2000/2001 Academic Year

During the 2000/2001 academic year, 20 teaching sessions were evaluated (see Table 5), 13 of them by students only. Most were tutorial sessions (12/20). The assessment meeting at the end of that year led to the following proposed changes:

- Identify problems and seek corresponding solutions. For example, some of the practical sessions may be dual, with a tutorial part and a real practical part. In that case, it might be correct to use two types of questionnaires. Similarly, it is important to establish ahead of time the exact features of the session to be evaluated, since using a practical session questionnaire for a tutorial session (or vice versa) is inadequate. In addition, it was observed that the clinical teaching questionnaire is well suited for a consultation type of clinical situation but is not (or not well) suited for surgery, clinical case presentations, and so forth.
- Confirm the importance of comments from peer evaluators. This is the primary reason that a dual evaluation by students and peers is interesting: peer evaluators may sometimes include instructional tips based on their experience in educational methodology, while students can identify what they find satisfactory or not (sometimes with much conviction) but are less able to suggest constructive changes.
- Contemplate the possible benefit of asking the faculty member being evaluated for a self-evaluation. (It was decided later that each evaluated colleague would be asked to fill out the same questionnaire as the peer evaluators.)
- Keep the evaluated colleague informed by telling him or her about the evaluation the day before it occurs, so as to
  - ensure that the teaching session chosen for evaluation has not been cancelled;
  - stay courteous and decrease the stress generated by an unforeseen evaluation; and
  - keep the evaluation unbiased, since there is too little time and too many other things to be done for the faculty member to change the course of the teaching session significantly.
- Change the management process for the student and peer evaluations, which had thus far been organized by a single person, and make one of the evaluating colleagues responsible for the organization (contacting the colleague, requesting the teaching analysis, gathering student evaluation data, giving feedback on evaluation results). This allows for a better knowledge and appropriate tailoring of the evaluation method for each of the evaluating colleagues.

At the end of 2000/2001 academic year, for the first time, a satisfaction questionnaire was sent to evaluated faculty. This questionnaire included a small number of closed questions, shown in Table 7, and one open question that invited "free comments on the evaluation method as well as precise, realistic proposals to improve it."

As Table 7 shows, a majority of faculty from the 2000/2001 evaluated group responded (17/20). Of these, a majority had gained new information from the evaluation (16/17), found it to be useful or very useful (15/17), and were led to change their teaching practice on one point (7) or several points (7).

Table 7: Responses to closed questions out of the satisfaction questionnaire obtained from evaluated faculty

	Evaluation by Students		Evaluation by Students and Peers		Total
	2000/2001	2001/2002	2000/2001	2001/2002	
Number of faculty members evaluated	13	11	7	4	35
Number of faculty members who responded to the satisfaction questionnaire	12	8	5	3	28
Confirmation of existing information					
Yes	8	7	4	3	22
No	3				3
Further information added					
Yes	11	7	5	3	26
No	1	1			1
Information has been useful for the faculty member					

Useless	1				1
Not very useful	1				1
Useful	8	4	1	2	15
Very useful	2	4	4	1	11
Evaluation has contributed to a change in teaching behavior					
Not at all	3	1			4
On one point	3	2	4	1	10
On several points	6	5	1	2	14

The 2001/2002 Academic Year

During the 2001/2002 academic year, 16 teaching sessions (see Table 5) were evaluated, 11 of them by students only. Only lectures (6) and tutorial sessions (10) were evaluated. Teaching sessions from all of the five curricular years at EVA were evaluated. For 10 of these sessions, the faculty member provided a self-evaluation. These scores are listed in Table 8 along with the corresponding scores from evaluating colleagues. Table 8 shows that

- except for one, all self-evaluation scores are lower than the corresponding ones given by students
- self-evaluation scores are closer to colleagues' scores than to students' scores

In addition, the previously recorded tendency for students to give higher scores than evaluating peers has been confirmed: for the five instructors evaluated by both students and peers, the students' scores were higher by 5.6 to 10.2.

Table 8: Scores given by students and peer evaluators and self-evaluation scores for the 2001/2002 academic year

Faculty Member	Student Scores	Self-Evaluation Scores	Peer Evaluator Scores
1	35.0	38.0	
2	37.4	31.6	
3	42.7	31.4	
4	39.5	37.5	
5	42.3	33.3	
6	42.5	37.0	
7	43.3	29.1	36.5
8	45.6	41.5	
9	46.5	41.4	37.6
10	46.6	34.6	36.4

The assessment meeting at the end of the 2001/2002 academic year has led us to

- note the absence of practical and clinical teaching evaluation for that academic year. It is therefore still not possible to validate the corresponding questionnaires. As to clinical teaching evaluation, it was decided to
  - encourage clinical faculty requests for evaluation of a clinical session,
  - favor evaluations by students only, which are easier to organize, and
  - not limit clinical evaluation to a single clinical session but, rather, repeat the evaluation either by the same group of students over several weeks or by different groups of students, spread over several weeks.
- realize how important it is to keep students informed on objectives, modalities, and foreseen consequences of these faculty evaluations so that their interest in carefully responding to the questionnaires remains high. A one-page notice was therefore handed to each student at the beginning of the following academic year in September 2002.
- note how rare was a complete evaluation by peers, including evaluation of the student performance test. Only one among five of the peer evaluations was complete with the evaluation of this final step of the instructional spiral.

This deficiency may be explained by the possibly long period between the evaluated teaching session and the test date; by tests that do not systematically fit the evaluated teaching session; by tests that may have been produced in collaboration by several faculty members; and so on.

To address one of these problems, it has been suggested that the instructor may provide the previous year's test if it is still considered to be relevant.

As in the previous year, a survey questionnaire was sent to colleagues who went through the evaluation system in 2001/2002. The results, which are reported in Table 7, confirm those of the previous year.

PERSPECTIVES

Validation of the quantitative informative evaluation of faculty at the EVA may appear to have been slow and difficult. Three years after its implementation, about 30 faculty (out of almost 70) have used it; practical sessions and clinical teaching questionnaires have been tested only sporadically, and the same applies to the student performance test evaluation questionnaire.

One of the limiting factors of the method is the need for evaluating colleagues, who must therefore manage an extra workload in addition to their usual activities.

The initial idea of setting evaluation pairs, with an outside peer evaluator and an on-site colleague, has been abandoned, since the first two outsiders worked far away from Paris. Two limiting factors were encountered: the need for a longer stay and higher travel costs. At the time of writing, and since more than a year ago, teams of peer evaluators are made up of two colleagues from EVA.

Along with perfecting this informative evaluation method, a process of change toward a summative evaluation for promotion purposes is underway. For this purpose, the department of academic and research affairs of the Ministry of Agriculture is financing the work of a group of colleagues from the schools it operates. This working group met three times in 2002. Based on the Alfort experience, it will propose a promotional educational evaluation method for teaching faculty. This process could begin with a larger-scale use of the informative evaluation method throughout the schools run by the Ministry of Agriculture, leading to a list of peer evaluators at each school who could participate in evaluations elsewhere in their region. The fine-tuning of the informative evaluation method by a greater number of schools would probably make this method more acceptable to those schools, paving the way for its replacement by a similarly based promotional evaluation method.

Several reports have highlighted the positive aspects of this method (and corresponding risk factors): the cooperation of the responsible government ministry; the commitment of the school's dean; the involvement of local faculty interested by the instructional methodology; the fact that the method is as fair and easy as possible. Overly complex methods are unlikely to survive, as is demonstrated by the experience at Madrid Complutense University,[23] where a multi-evaluation system, probably a good method in theory, was implemented and then abandoned.

CONCLUSION

The informative evaluation method used at the École vétérinaire d'Alfort for three years has been helpful to most faculty who accepted it. It highlights areas for improvement and should continue to evolve over the next few years. One can hope that, apart from being an instructional aid teachers, it can evolve, with the necessary changes, into a tool that can be used to evaluate the instructional achievements of faculty seeking promotion.

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NOTE

a. The so-called informative evaluation is intended only to give an information, as opposed to statutory, summative, or promotional evaluation, the results of which would be used for sanctioning or promoting an individual.

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