

**A programme of peer review of teaching in Higher Education: pilot study and improvement proposals through a nominal group technique.**

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### **Abstract**

Peer Review of Teaching (PRT) programmes provide benefits for both the observer and the observed colleague, but there are no PRT programmes implemented in Spanish Universities. A PRT pilot programme involving 14 volunteer teachers from University of Granada (Spain) was carried out. Each participant observed a colleague while giving a lesson, afterwards filling out a checklist to provide appropriate feedback. To evaluate its effectiveness to detect aspects of teaching that could be improved, pre- and post-observation anonymous questionnaires were self-administered. The programme was more effective detecting teacher weaknesses than strengths. All participants who thought they would feel nervous/ashamed declared to feel better than expected after the observation. The programme met the expectations of all participants. Proposals for the improvement of the programme were agreed through a nominal group technique, where two questions were formulated: *How could the PRT programme be improved?* and *How could university teachers be encouraged to participate in a PRT programme?* The proposal with the highest score to improve the PRT programme was *To ensure that the observer and the observed do not belong to the same area of knowledge*, and the proposal with the highest score to encourage participation in PRT programmes was *To provide information before participating in the programme to alleviate possible fears or worries*. In summary, our PRT pilot programme allowed self-reflection on teaching, identifying weaknesses while minimizing preconceived negative feelings, and providing valuable information for further larger studies with the potential to improve the quality of teaching in the Spanish context.

**Key words:** peer review of teaching, higher education, nominal group technique, teaching innovation, teaching feedback.

## **Introduction**

The training and continuous improvement of university teachers are necessary. Various programs have been developed to initiate the junior teaching staff on their new tasks, as well as to improve the performance of senior staff. However, the use of methods that evaluate the teaching activity beyond student satisfaction questionnaires is not frequent in Spain. In spite of their limitations, e.g. low response rate, especially in the online surveys (Nulty 2008), student satisfaction questionnaires are still considered among the best methods to ensure faculty development and quality in health sciences (Debroy, Ingole, and Mudey 2019). Nevertheless, the absence of communication might result in a lack of utility of the evaluation tool (Schiekirka-Schwake et al. 2018). Thus, the validity of this method is an active topic of debate in the educational community (Rowan et al. 2017; Spooren, Brockx, and Mortelmans 2013).

Peer Review of Teaching (PRT) consists in direct observations of teaching activities among colleagues to give and receive feedback, which may improve teaching-learning effectiveness (Sachs and Parsell 2014). The peer review process is fully implemented in research, enjoying widespread support in the scientific community despite its imperfections (Manchikanti et al. 2015). However, there is certain skepticism about carrying out such a procedure in teaching. Lack of time, discomfort with receiving feedback and perceiving the PRT as a tool for evaluation and control of teachers have been described as barriers to participate in these programmes (Moon et al. 2018; McDaniel et al. 2019; Sachs and Parsell 2014).

PRT activities supplement student appreciations (Thampy, Bourke, and Naran 2015) and provide benefits for both the observer and the observed colleague. The benefits for the observer include learning new strategies and enhancing confidence to apply such strategies on their teaching activities (Hendry and Oliver 2012). For the observed

colleagues, it has been described that the PRT motivates to change their teaching practices (Garcia et al. 2017). Definitely, PRT allows self-reflection about teaching practice (Lucas 2018), and this often leads to adopting new attitudes and perspectives on teaching that broaden and enhance the pedagogical skills (Sachs and Parsell 2014).

Although there are different PRT formats described in the literature, they all have in common the objectives of reaffirming teaching strengths and identifying potential areas to improve (Thampy, Bourke, and Naran 2015). PRT is often implemented as an informal system which can lead to a loss of effectiveness (Dawson and Hocker 2020). In this sense, more systematic PRT programmes have been suggested to increase their impact (Moon et al. 2018), being a key aspect to settle a comfortable learning environment (Bhansali and Goldman 2018). The systematization may in turn contribute to its acceptance, minimizing the preconceived barriers to participate (McDaniel et al. 2019). Moreover, reflecting about the PRT programme and adapting it to the specific context where it is developed, may reduce the gap between the evidenced benefits of this method and the reticence found among teachers to perform it (Moon et al. 2018; Mager et al. 2014).

In Spanish universities, specific PRT experiences have been performed to improve the bilingual teaching in the context of teaching innovation projects (López-Lorente et al. 2018; Aguilar Caballos et al. 2020). However, to the best of our knowledge, there are no PRT programmes officially and systematically implemented in Spanish universities and a need for further research on the value of this method is imperative.

For the above described, we developed a PRT pilot programme in which teachers from a Spanish public university observed to and were observed by a colleague, aiming to: (1) evaluate the effectiveness of the programme, (2) analyse the acceptance/rejection

and expectations about the PRT programme, and (3) agree on potential improvements to the programme through a nominal group technique (NGT).

### **Materials and methods**

This PRT pilot programme involved fourteen volunteer teachers from the University of Granada (Spain), teaching during the first semester of the 2019–2020 academic year. The participants were affiliated to the following departments: Pharmacology, Physical Chemistry, Microbiology, Preventive Medicine and Public Health, Biochemistry and Molecular Biology, Physiotherapy and Applied Physics. The study was approved by the Quality, Innovation and Planning Unit of the University of Granada, Spain (Plan FIDO UGR 2018-2020). Five activities were carried out (Figure 1):

(1) Initial meeting. The coordinator informed about the objectives of the PRT programme and provided with training about giving and receiving feedback. Pairs of observer-observed teachers were assigned by the coordinator, some of them belonging to the same department and others not. Peer observation was not reciprocal, i.e. a teacher observed to and was observed by a different person.

(2) Pre-observation activity. We developed a self-administered and anonymous online questionnaire to be filled in by all the teachers. The following questions were asked: (1) *In your opinion, which are your teaching strengths?*, (2) *In your opinion, which are your teaching weaknesses?*, (3) *How do you think you will feel being observed in your teaching practice?*, and (4) *How do you expect PRT activity will influence on your teaching?*

(3) Observation. The observer attended a class of the assigned colleague and filled in a checklist containing the following main topics: preparation of the class, correspondence between level and content, teaching methods, student involvement, pace,

environment and assessment. The checklist also included a section for 'general comments', so any other aspect of relevance according to the observer could be covered during the observation. The lecture to be observed was agreed between both teachers, taking into account their timetables. Previously, the observer received a form from the observed with information about the particular characteristics of the class, such as number of students, usual level of student participation, among others. After the observation and within the following week, a meeting (private and confidential) was held, where the observer gave the feedback to the observed teacher. In this process, an agreement was reached on the weaknesses and strengths of the teaching performance of the observed teacher.

(4) Post-observation activity. A self-administered and anonymous questionnaire was filled in by all the teachers after having been observed. The questions were as follows: (1) *Were your perceived strengths the same as those reported by the observer?*, (2) *Were your perceived weaknesses the same as those reported by the observer?*, (3) *How did you feel being observed during your teaching practice?*, and (4) *Have your expectations about PRT activity been reached?* The first two questions allowed teachers to reflect on their teaching practices and served us to evaluate the effectiveness of the programme, measured as the degree of coincidences between the self-perceived skills (strengths and weaknesses) and those reported by the observer in the feedback. We considered the programme effective if it allowed the teachers to discover unknown skills.

(5) Evaluation of the PRT programme through a NGT. Briefly, this technique consists on a meeting of experts in a field where, in a structured way, their ideas about one or more questions are exposed (Van de Ven and Delbecq 1972). Its usefulness as evaluation tool in the teaching and learning processes in higher education has been demonstrated (Ives, Skelton, and Calvert 2013; Dobbie et al. 2004). Nine team members



plus the study coordinator participated in this activity. The meeting took place at the Faculty of Pharmacy of the University of Granada and it lasted 2 hours. With the permission of the participants, the meeting was audio-recorded.

The NGT developed in 4 stages (Figure 2). In the first stage the coordinator introduced the participants, explained the technique and formulated the questions aloud: (1) *How could the PRT programme be improved?*, and (2) *How could university teachers be encouraged to participate in a PRT programme?* Then, participants wrote down their ideas for 10 minutes. The second stage aimed to compose a map of group thinking with depersonalization of proposals which were not discussed or clarified at this stage. For each question, successive rounds of answers were provided by each participant, while the coordinator collected all the answers in a document which was projected into a screen. The third stage aimed to build the final list of answers for each question. Participants were invited to further clarify their answers if necessary and similar proposals were merged with the consensus of the group. The fourth stage consisted on the assessment of the resulting proposals. Each participant chose half of the final agreed answers and punctuated them according to their personal belief on the importance for the improvement of the PRT. After having counted the votes, the coordinator emailed a report with the results of the NGT. Participants had the opportunity of reconsidering their prioritization of proposals to achieve greater consistency and viability in the final results.

## **Results**

Participants had different levels of teaching experience (mean=7.6 years), ranging from a PhD student with teaching duties (2 years of teaching experience) to a Reader (13 years of teaching experience). Most of the participants were women (n= 10; 71%) and the age ranged from 26 to 44 years (mean 37.3 years). Four out of the fourteen resulting pairs of observer-observed did belong to the same department.

### ***Coincidences between teachers self-perceived skills and the observer's feedback***

The 14 participants filled in the pre-observation and post-observation questionnaires. 86% of participants (n= 12) declared that they had agreed with the observers in their teaching strengths. In contrast, most of the observed teachers (11/14) perceived different weaknesses than those stated by their observers. On the one hand, 43% of pairs showed no coincidences at all, either because the feedback reported only unaware weaknesses or because it reported no weaknesses. On the other hand, 36% of pairs showed a partial agreement, coinciding only in some of the weaknesses.

### ***Acceptance/rejection and expectations about PRT***

Regarding the acceptance, 9 participants declared negative feelings before the observation: feeling nervous (n= 7), ashamed (n= 1) or uncomfortable (n= 1). The rest of them declared to not mind being observed. After the observation, all the teachers who thought they would feel nervous or ashamed (n= 8) declared to have felt better than expected, e.g. *I felt nervous at first but after five minutes I forgot I was being observed*. However, the participant declaring feeling uncomfortable kept having the same feeling during the observation.

The teacher expectations prior to participating in the PRT are provided in Table 1. The most frequently reported expectations were *to improve the teaching activity and to identify/improve weaknesses and unknown skills*. After participating in PRT, expectations were reached in 100% of the cases. Moreover, additional items were indicated, e.g. *the observation increased my motivation* or *the observation increased my confidence/helped me to overcome my insecurity*.

### ***Improvements in PRT through the NGT***

Out of the 14 teachers, 10 participated in the NGT, one as moderator (the coordinator of the project) and 9 as experts. Regarding the first question proposed in the NGT, i.e. *How could the PRT programme be improved?*, 19 proposals were finally formulated after the merge (Supplementary Table 1). Each teacher selected and punctuated 10 of them, from 10 to 1, accordingly to the grade of agreement or importance for them. Thus, the maximum possible score was 90 (if one proposal was highest rated by the nine experts). Table 2 shows the results of the top ten prioritized proposals. The proposal with the highest score (61 points) was *To ensure that the observer and the observed teachers do not belong to the same area of knowledge*. Furthermore, *To improve the observation checklist by adding sections such as teacher movement, non-verbal communication, connection with students, atmosphere...* was the only proposal selected by all experts.

Fourteen answers (Supplementary Table 2) were formulated by participants for the second question: *How could a teaching community be encouraged to participate in a PRT programme?* In this case, participants had to select and score 7 proposals. The final score ranged between 0 to 63 points. The results of the top seven prioritized proposals are shown in the Table 3. The proposal with the highest score (47 points) was *To provide information (for example, through a talk) before participating in the programme to address possible fears or worries*. Similarly, the second most voted answer was *To give an informative session telling our experience*. The idea with the third highest score was *To promote that participation in the programme is taken into account in teacher evaluations*. There was no proposal selected by all experts.

At the opportunity to reconsider their scores by email, none of the experts modified them.

### **Discussion and conclusions**

The present pilot PRT programme offers a novel strategy for improving teaching skills that has traditionally been scarcely used in the Spanish/European context. The programme resulted effective manifesting unknown teaching weaknesses and reached all participant expectations. Although many teachers felt nervous before the observation, the feeling vanished during the observation. According to the participants, teachers should belong to different areas of knowledge to improve the PRT programme and should receive previous information to ensure their participation.

It has been described that PRT programmes promote the teaching reflection (Hammersley-Fletcher and Orsmond 2005), reaffirming teaching strengths and identifying potential areas for improvement (Thampy, Bourke, and Naran 2015), which are key components for teaching amelioration (Lucas 2018; Tsingos, Bosnic-Anticevich, and Smith 2014; Bell, Mladenovic, and Segara 2010). Presumably, the implemented PRT programme reached these objectives for several reasons. First, most of the participants expected to improve their teaching activity and to identify unknown weaknesses, and according to the self-administered questionnaires, expectations were met in 100% of the cases. These expectations about the PRT programme were similar to those described by previous studies (Richard et al. 2019; McDaniel et al. 2019; Bennett, Parker, and Smigiel 2012). Second, the analysis of the coincidences between self-perceived skills and the feedback showed that there were more coincidences in the strengths than in the weaknesses. Even if the teacher practice changed when being observed, yet the PRT programme provided unknown areas of improvement. Moreover, our data show that, except for one case, the feedback focused not only on positive aspects, which is desirable (Carroll and O'Loughlin 2014) since the lack of critical feedback is associated with no changes in teaching (Richard et al. 2019).

Previous studies have also evidenced that participants in PRT programmes frequently feel nervous. This was an unexpected finding for Moon et al. (2018), because in their programme all participants were faculty members with over five years of experience. Richard et al. (2019) interpreted as well-received a compulsory PRT programme with 31% of participants feeling nervous during observation. In our study, where teachers were volunteers and their teaching experience ranged from 2-13 years, 57% felt nervous/ashamed about being observed before participating. Of note, the remarkable thing is that after participating in PRT programmes, the negative feelings tend to disappear. In our programme, 100% of the teachers that had manifested to feel nervous before the observation, declared to have actually felt comfortable soon after the observation started. In the study by Richard et al. (2019) only 8% of participants disagreed with the item “*My attitude toward peer review is more positive as result of this process*”. This supports the idea that taking part in a PRT programme minimizes the preconceived barriers to participate (Lucas 2018; Richard et al. 2019; McDaniel et al. 2019; DiVall et al. 2012).

As it has been suggested and performed in previous PRT implemented programmes (Moon et al. 2018; Cunningham 2017; Mager et al. 2014; Pattison et al. 2012; Bennett, Parker, y Smigiel 2012), the evaluation was the final phase in our PRT programme. NGT was the selected evaluation method because its previously-demonstrated utility as an evaluation tool (Coker, Tucker, and Estrada 2013; Ives, Skelton, and Calvert 2013), with the added benefit of promoting the active reflection (Cunningham 2017) and the establishment of priorities to act (Cooper et al. 2020). On the one hand, the highest scored proposal among our experts to improve our PRT programme was *To ensure that the observer and the observed teachers do not belong to the same area of knowledge*. In our PRT programme, pairs could be from same or different

departments, allowing us to evaluate the preference in our context. Not belonging to the same area of knowledge could minimize the participant feeling of being evaluated by the content, providing an essential key to the good performance of a PRT programme: a comfortable environment (McDaniel et al. 2019; Bhansali and Goldman 2018). On the other hand, similar to previous findings (Mager et al. 2014), the most selected proposal to improve the PRT programme was *To improve the observation checklist*. This shows the utility already evidenced of using structured tools to provide feedback (Bhansali and Goldman 2018) and the importance of evaluating the checklist to be adapted to the specific context where the PRT programme takes place.

With respect to the question *How could university teachers be encouraged to participate in a PRT programme?*, the proposal with the highest score was *To give information (for example, a talk) before participating in the programme to address possible fears or worries*. Previous information could alleviate the fear about an unknown process. In the study by Richard et al. (2019) the PRT programme was well-received and participants strongly agreed with having been given enough information regarding the peer review process (Richard et al. 2019). Another idea mentioned by the experts, but with lower consensus, was *To promote that participation in the programme is taken into account in teacher evaluations*. There is a controversy about whether PRT programmes should form part of the teacher evaluation process. There are experts who defend that the results of PRT programmes should be included as part of the yearly performance evaluation (DiVall et al. 2012). Our experts defended that the participation in the programme but not the results, which should be confidential, may be part of the teacher evaluations, in order to guarantee a key aspect in PRT programme highlighted by other authors (McDaniel et al. 2019; Schultz y Latif 2006): a non-threatening environment.

This study has potential limitations to be taken into account when interpreting the results. First, participants in the PRT programme were volunteers. It cannot be discarded that those most interested in teaching participated, causing a selection bias. Nevertheless, we followed the suggestion that the initial participation should be voluntary to guarantee the success of the peer observation system (Carroll and O’Loughlin 2014). Second, the goal of a PRT programme is to have an impact on teaching and on student learning and we have failed in evaluating this aspect. In this regard, one of the proposals arose from the NGT about how to improve the PRT programme was *To make two observations per person, the same observer, before and after the feedback*, selected by 67% of the experts. This would allow to verify if improvements have been done, so such proposal will be taken into account in the future. Third, the immediacy of prioritization in the NGT (McMillan, King, and Tully 2016) can lead to assuming a higher level of consensus of what is actually achieved. In order to try to eliminate this potential conflict, the coordinator offered the experts the opportunity to reconsider their voting by email, although none of experts modified their scores.

As strengths, we highlight the following: (1) To our knowledge, this is the first inter-departmental PRT programme developed in a Spanish University and it has provided encouraging results. (2) To guarantee the teaching reflection, different activities were integrated: a pre-observation questionnaire, immediate subsequent feedback after observation and a post-observation questionnaire. (3) The questionnaires were anonymous, favoring the sincerity of the answers and avoiding an information bias. (4) The pre and post-observation questionnaires and feedback were confidential following previously reported quality criteria for PRT programmes (Newman, Roberts, y Frankl 2019). (5) Another strength was incorporating the NGT for evaluation of the PRT programme, which has demonstrated to be useful to agree proposals, allowing the

improvement of the programme in the future. (6) Finally, the programme allowed to establish contacts between members of different departments.

In conclusion, the PRT pilot programme allowed to self-reflection about teaching and to identify teaching areas of improvement. Moreover, the participation minimized the negative feelings and it reached the expectations in 100% of the participants. These results, with incorporation of the suggestions of improvement obtained through the NTG, encourage to the implementation of a PRT programme in a broader context as a promising strategy to improve teaching.

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Figure 1. Chronology of activities carried out in the peer review teaching programme.

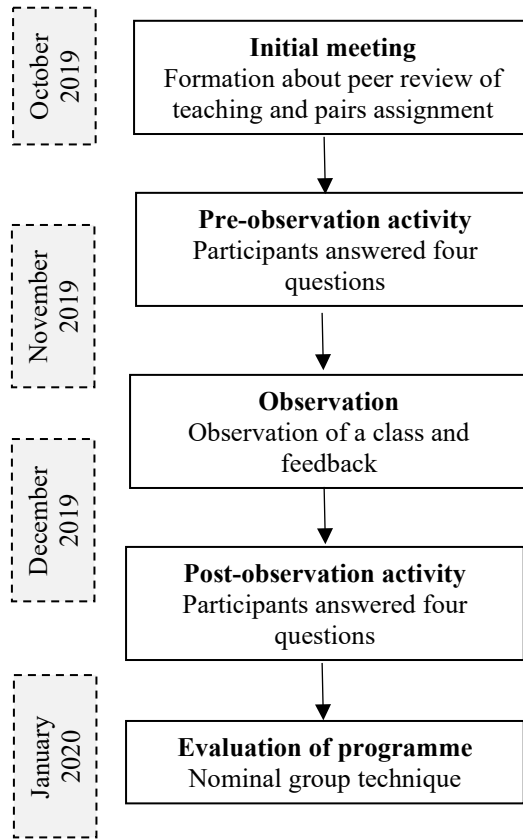


Figure 2. Phases of the technique nominal group.

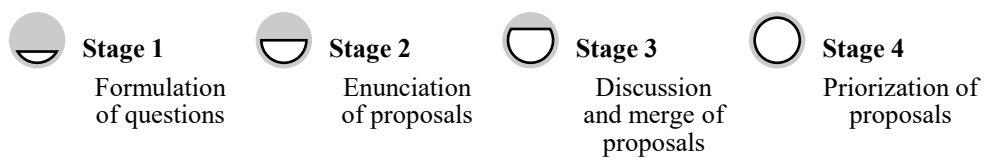


Table 1. Participant expectations about the peer review of teaching programme prior to observation.

<b>Expectation</b>	<b>Expressed by n (%)*</b>
To improve the teaching activity	8 (57)
To identify/improve weaknesses and unknown skills	8 (57)
To learn to give feedback to students	2 (14)
To learn from colleagues	2 (14)
To develop teacher collaborations	1 (7)

\*The percentage can sum up more than 100% because participants could express more than one expectation. N= 14.

Table 2. Results after the prioritization of proposals formulated in the nominal group technique for the question: *How could the PRT programme be improved?*

<b>Proposal</b>	<b>Final Score (Max: 90)</b>	<b>Selected by n (%)</b>
To ensure that the observer and the observed do not belong to the same area of knowledge.	61	7 (78)
To automate the system for pair assignment, showing schedules of available classes to be observed (anonymously).	59	8 (89)
To improve the observation checklist adding: teacher movement, non-verbal communication, connection with students, atmosphere...	49	9 (100)
To ensure that feedback is provided/received right after the observation.	44	8 (89)
To increase the number of observations, at least, by two different teachers.	37	5 (56)
To make two observations per person, the same observer, before and after the feedback.	32	6 (67)
To observe practical teaching or theory, but do not mix activities in the same programme.	30	5 (56)
To involve students in observation, provided they observe those who are not their teachers.	25	7 (78)
To randomize the system for pair assignment (keeping a different area of knowledge).	25	6 (67)
To favor the loss of embarrassment with training on how to give and receive feedback.	24	6 (67)

Table 3. Results after the prioritization of the proposals formulated in the nominal group technique for the question: *How could university teachers be encouraged to participate in a PRT programme?*

<b>Proposal</b>	<b>Final Score (Max: 63)</b>	<b>Experts selection n (%)</b>
To give information (for example, a talk) before participating in the programme to address possible fears or worries.	47	8 (89)
To give an informative session telling our experience and results.	36	8 (89)
To promote participation in the programme to be taken into account in teacher evaluations.	32	7 (78)
To provide a certificate of participation.	30	7 (78)
To promote institutional support from the Faculty, the Department and other institutions.	28	6 (67)
To promote participation in the programme with a reduction in teaching hours (0.1 hours per observation).	20	6 (67)
To do a training course on peer review of teaching.	15	5 (56)

Supplementary Table 1. Proposals formulated in the nominal group technique for the question: *How can the PRT programme be improved?*

<b>Proposals</b>
To ensure that the observer and the observed do not belong to the same area of knowledge.
To observe practical teaching or theory, but do not mix activities in the same programme.
To observe student tutorials, where not so strictly academic aspects could be appreciated.
To automate the system for pair assignment, showing schedules of available classes to be observed (anonymously).
To make two observations per person, the same observer, before and after the feedback.
To increase the number of observations, at least, by two different teachers.
To increase the number of observations, at least, by three different teachers.
To make two observations by teacher of different level/experience.
To do, at least, two evaluations: one of practical teaching and another of theory class.
To design a new observation checklist if the same person observes twice at different times.
To involve students in observation, provided they observe those who are not their teachers.
To randomize the system for pair assignment (keeping a different area of knowledge).
To ensure that feedback is provided/received right after the observation.
To do not see the observation checklist before being observed.
To make a complete observation of the class, from the preparation of the class to the exams.
To add a "reason your answer" section in the post-observation questionnaire.
To improve the observation checklist adding: teacher movement, non-verbal communication, connection with students, atmosphere...
To integrate in the observation checklist "numerical values" to facilitate analysis.
To favor the loss of embarrassment with training on how to give and receive feedback.

Supplementary Table 2. Proposals formulated in the nominal group technique for the question: *How could university teachers be encouraged to participate in a PRT programme?*

Proposal
To give information (for example, a talk) before participating in the programme to address possible fears or worries.
To give an informative session telling our experience and results.
To provide a certificate of participation.
To promote institutional support from the Faculty, the Department and other institutions.
To promote the programme through “mouth to ear”.
To promote the programme through the university new channel.
To promote participation in the programme with a reduction in teaching hours (0.1 hours per observation).
To encourage scientific publications based on the PRT.
To promote participation in the programme to be taken into account in teacher evaluations.
To create an information exchange group on teaching, innovation, etc. by email.
To inform or involve the youngest teachers.
To do a training course on peer review of teaching.
To publish the list of teachers participating in the programme.
To allow the presence of a group of seniors who only observe and they are not observed.