Effect of focus group on engineering students' course evaluation

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Introduction

A focus group can be thought of as a type of interview used by the researchers to 'elicit information in order to achieve a holistic understanding of the interviewee's point of view or situation' Berry (1999). It can open up stimulating areas for further investigation as it involves asking students open-ended questions and focus on obtaining particular information about different aspects of the course.

A focus group is easier to deal with as opposed to the whole cohort especially in big classes. Focus group can be conducted during and/or after the completion of a course to assess students' learning and perception of the course. Feedback may provide insights into students' study perception, approaches, timing, learning experiences and attitudes towards the tasks. Focus groups can lead to more detailed answers from students on the issues that may have been raised in the surveys conducted at the end of course. Besides, if run during the course, feedback from the focus group can be used by the lecturer to improve the course aiming at higher end-of-semester evaluation results. The obtained feedback can shed lights on learning behaviours which might remain difficult, if not impossible to, notice.

Hence, focus groups have been extensively used in the education literature. Bangura (1994) uses focus groups as an alternative for collecting course evaluation data. Eight focus groups were formed encompassing 86 students mainly providing feedback to the teaching team. The students' poor performance were then linked to their need for affection and empathy, lack of fit with the university subcultures, pricey textbooks, assessment methods on top of lack of faculty advisers. Following the interviews, the teaching staff were able to make specific recommendations for improving the learning environment and teaching. Hamilton et al. (2002) investigated the effects of using in-class focus groups on student evaluation of the Principles of Finance course at a regional university. According to those authors, use of focus group can increase the students' satisfaction level. Furthermore, the authors discussed how this result could be related to the Hawthorne Effect. Loriz and Foster (2001) utilized focus groups to evaluate a new nursing program. The focus group concentrated on curriculum and program issues as well as the characteristics of the students (their culture and identify facilitators, barriers, and concerns in a new program). According to those authors focus groups were potentially powerful evaluative tools and could potentially develop a sense of ownership among the students. In the context of evaluating an introductory course in social medicine, Nestel (2002) noted that focus groups were less time-consuming and provide more specific information than written evaluations despite the involvement of fewer (non-anonymous) students in the focus groups. Ravelli (2000) applied focused groups both during and at the end of the course to evaluate an online tool for teaching assessment. It was reported that those students who were satisfied with teaching felt no real need to complete the online teaching assessment. Besides, it was reported that the students felt a greater sense of involvement in the teaching and learning process when feedback from the assessment tool was discussed in class; hence an enhanced communication between instructor and the students. The work of Wachtler and Troein (2003) used a multimethod approach to map the cultural competency training to the medical curriculum in a Swedish university. The approach included a review of the learning objectives of the program, staff and focus group interviews (with students in different stages of the program). It was reported that focus groups resulted in a greater

understanding of the curriculum and the possible improvements. Brandl et al. (2017) randomly selected 16 students to participate in student evaluation team meeting where they meet the course directors, academic deans and other faculty members involved in the design and delivery of the course. According to those authors, the students and course directors found the process itself a “positive experience” mainly because the students felt that their voices were heard making the suggested changes more probable to be implemented. Moreover, the process was found to be a valuable way to supplement online evaluation systems benefitting both students and teaching staff.

In view of the above, as the literature suggests, forming a focus group can be beneficial in a number of ways. Here, this paper attempts a quantitative evaluation of the effects of forming a focus group in a big classroom, over 250 students, where it is nearly impossible for the lecturer to have a one on one interaction with the students. Likewise, students find it difficult to directly communicate with the lecturer to provide timely feedback during the semester. Hence, the paper used focus group as a supplement to online course evaluations for a third year Mechanical Engineering course taught at The University of Queensland. In what follows, details of the process and a reflection on the outcomes are presented.

Case study

Since 2014, the University of Queensland has moved to use an online system to gather student feedback on the quality of the educational programmes and services. Prior to that hard copies of question sheets were used for this purpose. It was limiting the feedback to those who were physically present in the class during a lecture. The time and date for evaluation were, however, announced so that those students who were interested in providing feedback could turn up. The online system, however, gives students a wider window of time and obviously extends the opportunity to the whole class to participate in giving feedback. This, nonetheless, leaves the obvious question of who will rate the course and the lecturer as there are regular students who turn up for the lectures, attend the tutorial and practicals and, in a way, are more involved with the course than those who prefer to miss out on the lectures and tutorials. This particular course is composed of three hours of lectures and an hour of tutorial per week; attendance at none is compulsory so not recorded. The incentive, however, is that there are fortnightly quizzes on odd weeks (starting from week 3) that are using questions similar to those of tutorials. The question sheets are provided for each tutorial every week along with the final answer to each question but the solution and detailed workouts are only provided a week later. The students are instructed to try the tutorial questions at home and if they cannot obtain the (correct) final answer they can turn up at a tutorial session where they can ask questions from tutors. The lecturers usually try to attend the tutorials to help and also to probe information as to whether there are common problems in class sounding too difficult for the majority of the students.

One obvious question was to know who would take the time to provide feedback through the online tool based on his/her performance in the course and throughout the program. Besides, it was interesting to know if the students who do not attend the lectures would take the time to provide feedback. One can, obviously, question the “utility” of the feedback provided by those who do not participate in the course and are expected not to know the course as good as those who spent more time attending the lectures and tutorials. Furthermore, online data is limiting, however, as the course lecturers cannot question the students about written comments, nor can there be a mutual problem-solving dialogue.

In view of the above, in the 2015 offering of the course a focused group was formed. In what follows, the implementation of a focus group which was called a “student representative group” is described. It was a volunteering activity for the students with no limitation/control (GPA, background, gender …) except for total number of students in the group which was, arbitrarily limited to 10. The group met with the lecturers (two academics, one of whom was the course coordinator, who were delivering the lectures; tutors were not invited to the meeting) twice; in weeks 3 and 10 (total of 13 teaching weeks per semester). No formal feedback form or

interview was provided rather they were informal meetings to probe how the students felt throughout the course and what were the main concerns of the bulk of the class who could not or did not want to communicate with the lecturers directly. Some issues were raised (including, for instance, detailed comments like quality of the handwriting used in answering the tutorial questions, need for more in-class problem solving, level of difficulty in different quizzes, the pace at which different parts of the course were taught …) and the lecturers took note of them. It was then discussed with the class during one of the open lectures to seek further feedback from the class. The second meeting was more reporting back to the focus group as to how the suggested changes were implemented. It was noted that the group had not much to add and was satisfied with the changes implemented. The lecturers took that as a satisfactory level of communication with the class through the focus group a.k.a. the student representative group. Following the meeting on week 10, the issues were again discussed in an open lecture to seek further feedback from the class and investigate if there are more comments and suggestions from the students to be implemented. None was raised during that lecture.

Results and discussion

Both the students and lecturers found the process itself a positive experience. Students in the focus group provided verbal feedback, during the second meeting, emphasizing that they found it a valuable exercise to represent the class and also carried the message from the class that the students are happy to realize that they are “heard” and that the process enhanced the probability of suggested changes being implemented during the same offering as opposed to being used for future offering of the course. To quantitatively evaluate the effectiveness of the process and also to investigate students’ participation based on their performance in their studies, data pertinent to two successive years of the course evaluation were analysed. Essentially in the later offerings of the course everything remained the same except for the existence of the focus group which was terminated in the subsequent years. Data used for evaluation are the formal end-of-semester online feedback response from students. They are collected by the university and were only provided to the lecturers after the grades were released (of course de-identified). The data pertinent to three successive offering of the course were used. The online evaluation system asks 10 questions about each lecturer and the course (in this case a total of 30 questions as there were two lecturers teaching the course). Each of these questions aims at a particular aspect of the course/lecturer. The 8th question in each (teacher and course evaluation) form asks about the overall performance of that particular lecturer (in case of teaching evaluation) or course (obviously pertinent to course evaluation). The students are also given the chance to provide extra feedback (i.e. an additional paragraph or even page).

Figure 1 below illustrates the students’ response to the question “overall, how do you rate this course” (on a scale from 0 to 5) on the major vertical axis (left) and the “response rate“ (number percentage of the students participated in the evaluation) on the secondary vertical axis. As seen, the course has scored the highest in 2015 when the focus group was formed and, at the same time, the highest response rate was observed on that same year. The former (data pertinent to the solid line) has dropped over the next two years while the latter (solid symbols) remained almost unchanged with a slight decrease in 2017 compared to that of 2016. Based on this figure, one can conclude that the focus group has been regarded to a positive experience by the students as reflected in their higher course evaluation and response rate. The hypothesis is that the students perceive as a two-way feedback. In one hand, they can talk to the teaching team (indirectly though) while, on the other hand, the teaching team can make use of the provided information and come up with a response to the class’ need. In order to assess this hypothesis, one can make use of the data provided in the questionnaire, in response to the question asking if the student “received helpful feedback on how he/she is going in the course”.

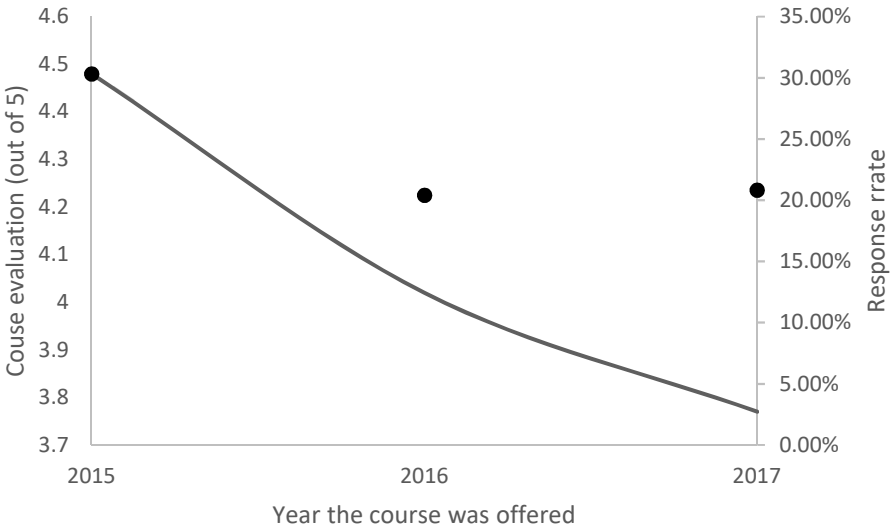

Figure 1. Course evaluation and response rate for three consecutive years

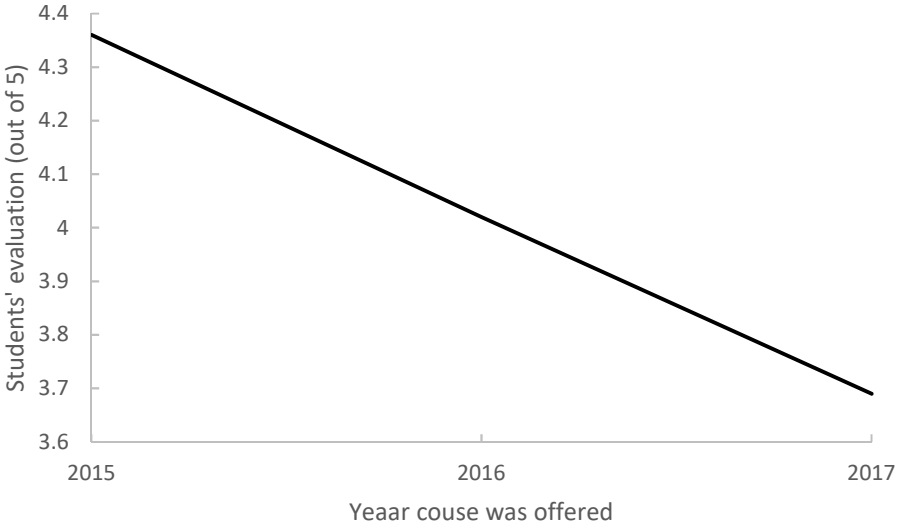

Figure 2. Students' response to the feedback question versus course offering in different years

According to Fig. 2, there seems to be a correlation between the students' perception of feedback and the existence of the focus group. As seen, the feedback question received higher scores when there was a focus group in 2015. The score, however, drops down in the subsequent years.

Figures 3-5 are presented to investigate students' perception based on their overall GPA. As mentioned, the students' identifications are not known to us but the data were collected in a way that one can link the students' evaluation to his/her overall GPA throughout the program. In what follows, one can, in a way, listen to students with different GPA bands. The intention is to investigate if a certain group of students, based on their GPA, respond differently to the sane question. The answer is, interestingly, positive as it will be shown in the following figures.

Figure 3 shows the students' response to the course overall evaluation for different years but this time categorizing the students' overall GPA in their enrolled program. There seems to be a trend showing that students with higher GPA were more content with the course in each offering; except for those with GPA 5 in 2016. Comparing the results pertinent to 2015 to the subsequent years, one also notes a higher satisfaction in the cohort who had the focus group formed in their class regardless of their overall GPA. There seems to be an exception again

pertinent to students with GPA 5 in 2016. Figure 4 presents a similar chart (to Fig. 3) but uses the data for the feedback question instead. A similar trend can be observed. That is, there seems to be a correlation with students' evaluation of the course with the presence of the focus group manifested in the feedback perception.

Figure 3 Students' response to the overall course performance question based on their GPA over different years

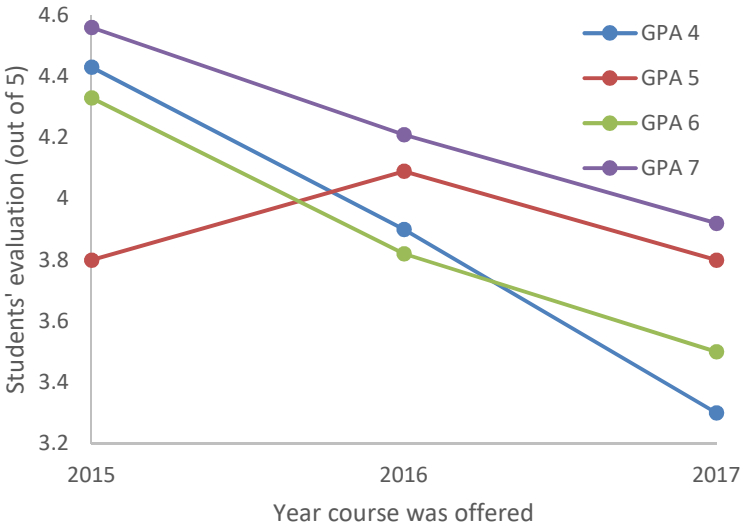

Figure 4. Students' response to the feedback question based on their GPA over different years

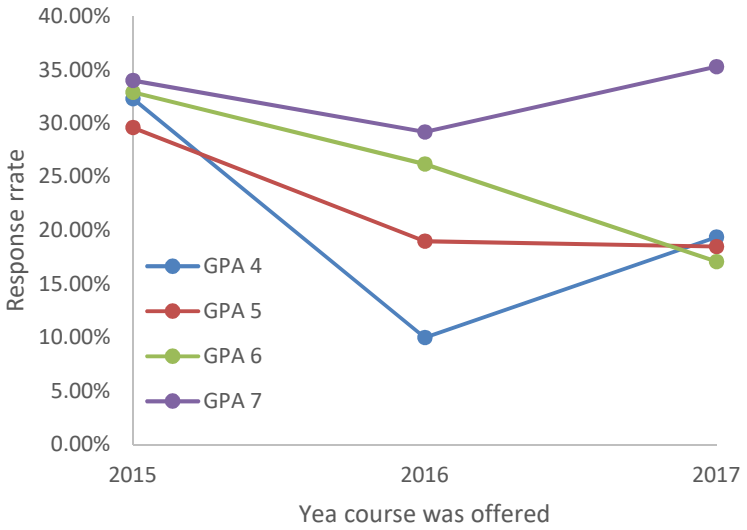

Figure 5. Response rate at different years versus students' GPA

Finally, Fig. 5 presents the students' response rate for different GPA groups over the three years. Interestingly, students with higher GPA tends to care more about filling the online evaluation forms. Their number density, however, is much lower. In all three years a more or less bell-curve type grade distribution was observed in the course. This may apply to the students' GPA as well but it was not verified. It is important to note that, the data presented here are particular to a certain course and cannot be generalized. The course was more popular among the high-GPA students (not uniformly so over the three years but more or less true) and more of those students participated in the course evaluation. Note that the percentiles presented here are referring to the portion of students with a given overall GPA who filled the online survey forms (hence do not add up to 100%).

Conclusion

The data suggest that formation of a focus group is a valuable way to supplement online evaluation systems and to increase students' satisfaction with the evaluation process. It has been noted that the students' satisfaction with the course are correlated with their perception of feedback and both, their satisfaction and feedback perception, are improved when a focus group was formed and the students' input was taken into account. Data were recast taking into account students' overall GPA in the program to investigate the participation and perception of different groups of students based on the end-of-semester online evaluation data.

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