

## Evaluating the impact of peer feedback on student presentations

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**Summary.** The aim of this project is to restructure the course *Cognitive Science 1* that I taught in autumn 2015 at the Humanities faculty at the University of Copenhagen. In particular, given my reflections on last year's evaluation, I wanted to increase the benefit of student oral presentations by evaluating the effectiveness of peer assessment.

The effect was evaluated through a questionnaire in the middle of the course, overall peer feedback response rate, the course evaluation and a focus interview at the end of the course. Peer feedback was overall considered beneficial, but enough time needs to be allocated for it during class.

### Introduction

Peer assessment has been increasingly used in higher education. There is evidence in the literature that students benefit when provided opportunities to give feedback to, and receive from, their fellow students.<sup>1</sup> For instance, peer feedback processes help “to develop skills such as critical reflection, listening to and acting on feedback, sensitively assessing and providing feedback on the work of others. Students can learn not only from the peer feedback itself, but through meta-processes such as reflecting on and justifying what they have done” Liu and Carless, 2006. However, peer assessment needs a supportive classroom climate McMillan, 2013.

Peer assessment comes in many different forms McMillan, 2013 (chapter 22): quantitative (involving students in grading), qualitative (giving rich

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<sup>1</sup> <http://www.enhancingfeedback.ed.ac.uk/staff/resources/involvingstudents.html>

feedback), or both. It can be used as tool for feedback both in offline (in class) or online (e-learning) scenarios, and involve either formative or summative assessment, or both.

The aim of this project is to evaluate the effect of restructuring the course *Cognitive Science 1*, in particular, assessing the effectiveness of peer assessment on student oral presentations. I focus on qualitative peer feedback as formative assessment tool.

## **Description of the course**

The course is a compulsory Master level course running in block 1 for first-year Master students of IT & Cognition at the Faculty of Humanities. The aim of the course is twofold: i) to provide an introduction to research areas related to Cognitive Science (Language, Learning, Vision, Memory); ii) to equip students with the ability to present research papers in computational cognitive science.

In each class, a group of students is responsible for presenting a research paper. This is directly linked to and prepares them for the exam, which is oral, however, presentations are individual. During the 30 minutes exam, the student presents a research paper, followed by a discussion.

## **Evaluation of last year's class**

The evaluation of the course of the previous year (2014)—as I've obtained by going through the feedback obtained from the official evaluation form—indicated three major issues:

1. limited benefit of student presentations,
2. very different expectations of students to the content of the class, and
3. non-coherent presentations of topics.

## **Consideration for restructuring the class**

In order to address the issues outlined above, I tried to restructure the content of the class (addressing points 2 and 3), and added peer assessment (point 1), as discussed next.

The content was made more coherent by planning the entire class ahead of time. This was not possible last year because I was given only two weeks

to prepare the class (which contributed to point 3). Coherence can be also improved by always setting a lecture into the 'big picture' (why do we touch upon this now? How does it relate back to the overall course?). Related to this is to link content to the course outcomes and the overall study program, inspired by *constructive alignment* Biggs and Tang, 2007. I have implemented this during class by motivating every new topic and putting it more explicitly into the broader perspective, i.e., by making references to similar topics discussed in other courses in the program (vision processing, scientific programming, or follow-up classes like language processing 2), or linking back to prior content. Also, when guest lecturers were involved I was always present and I briefed them before their lecture on related topics that we have already seen in class. This overall approach of 'setting the scene' worked very well as gauged from direct feedback obtained from the students during the course, which is an invaluable resource of information to improve one's own teaching.

Reducing non-coherence provides an indirect mechanism for aligning expectations. Diverging expectation were less of an issue this year, most probably due to the better planning. In addition, last year's course content was overloaded (e.g., the inclusion of hands-on practical exercises at the beginning of the class, now entirely diverted to other compulsory modules that focus on hands-on material). These observations support the importance of constructive alignment during the entire teaching phase, from planning a course to the actual final assessment.

As became clear from last year's evaluation, the students felt there was only limited benefit from student presentations. As discussed by Goering Goering, 2003, major issues that arise from student presentations are: i) students underestimate what it takes to prepare a good presentation; ii) students are not engaged to learn from their peers.

Therefore, this year the entire second lecture was devoted to a discussion of how to give a good research talk, to prepare the students for the following presentations. This was part of the implicit 'didactical contract', which was set in the first two lectures. In addition, peer assessment was used.

After each presentation, the students were given 5 minutes to complete the peer evaluation form (online form). The peer feedback was non obligatory and anonymous. Students had to present papers twice. During the first round the focus was on presenting the article in a concise manner (content and delivery). In the second round, every group was instructed to add a critical remark/reflection. This change was also reflected in the peer assess-

ment form, by adding questions and comments on how the critical assessment was incorporated and discussed (the final peer assessment form is in the appendix; it was inspired by a template from a course at the University of Edinburgh<sup>2</sup>). I hypothesize that if peer feedback is successful, then the response rate will remain stable throughout the course.

## Implementation

In order to evaluate the effect of the strategy the following data was collected in the course run in 2015 (there were 26 students in the first class, two dropped after the second lecture, hence,  $n = 24$ ):

- questionnaire after the first five presentations (first half of groups) to evaluate the on-going peer assessment; 76% of the present students participated;
- a focus interview at the end of the course; 4 participants volunteered, we assume that they belong to the more engaged students and are thus not representative for the course as a whole.
- the overall course evaluation as an optional online questionnaire;

Furthermore, the following data was available after the course:

- collected peer assessments,
- response rate,
- class attendance.

## 29.1 Analysis and Results

### *Questionnaire*

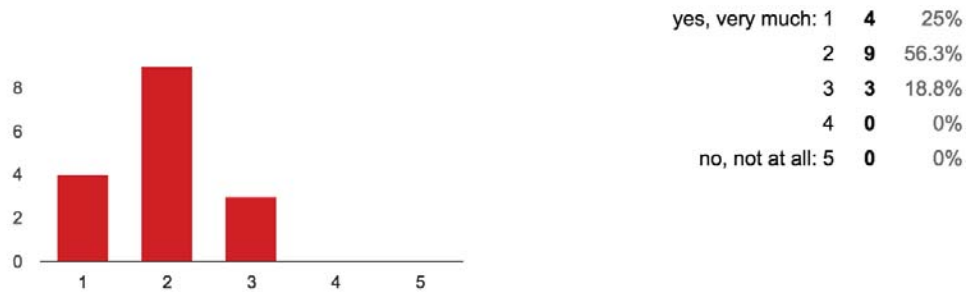
The results from the questionnaire show a positive effect of peer feedback (Figure 29.1):

- 81% felt that they did learn very much or a lot from their classmates' presentations
- a clear majority, i.e., 62%, thought that it is beneficial to have peer feedback

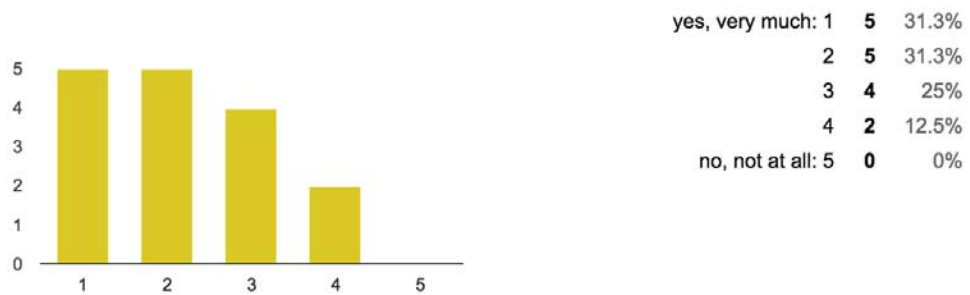
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<sup>2</sup> <http://www.inf.ed.ac.uk/teaching/courses/dnlg/presentations/peer-review-form.ps>

**Do you feel that you learn from your classmates' presentations?**



**Do you think it is beneficial to have peer feedback?**



**Do you think that the peer feedback helps you to prepare your own presentation?**

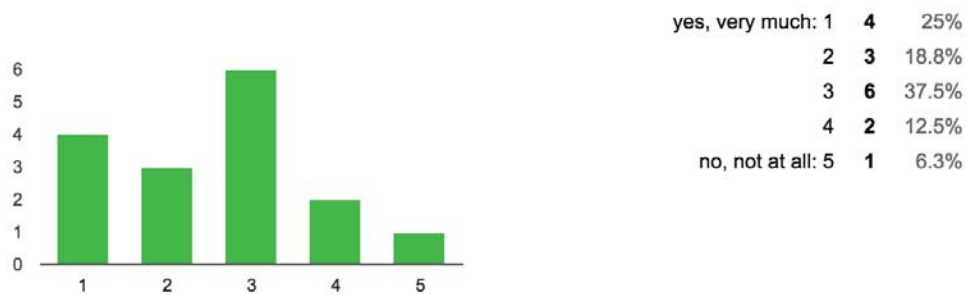


Fig. 29.1: Feedback after first set of presentations.

- whether peer feedback helps to prepare the student's own presentation was not as clear; still 43.8% said it helps, 18.8% said it does not, while 37.5% gave a neutral response.

The following two excerpts are responses to the open question of what works well / does not work well with peer feedback:

*I think it works well to comment on the content of the presentations, and the format of slides, but not to comment on stuff like how nervous people were. I do not think that this will help anyone to be*

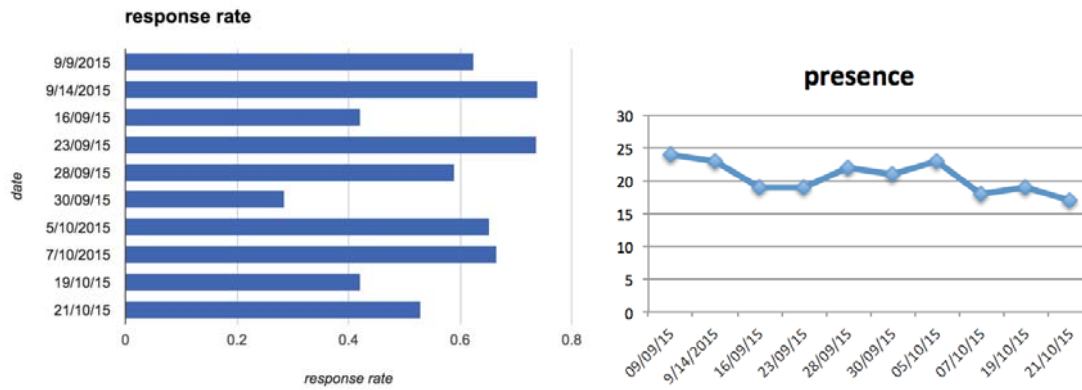


Fig. 29.2: a) Response rate in peer feedback. b) Presence in class.

*less nervous the next time. You also mentioned that the new survey will focus more on content, which is very good :)*

Some of the comments touch upon the issue of timing:

*Usually there is not a lot of time left to give feedback in the end. It would be nicer to have 5 minutes after a presentation to give the feedback but usually the timing does not work out that fine.*

In fact, in two lectures, i.e., 16/09 and 30/09, there was no time left at all to give feedback in class. This mainly explains the large drops in response rate, as shown in Figure 29.2 (left).

#### *Participation and response rate*

Figure 29.2 (right) shows class attendance. Although presence was not obligatory, students followed the class on a regular basis. Only two students dropped out after the first two lectures. There was a slight drop for the last two lectures after the autumn break (two students indicated beforehand that they would not be able to attend).

The response rate remained on a relatively constant level. The response rate during the first lecture was 62%. On average over all 10 sessions, the response rate dropped to 57%. However, if we disregard the two classes where time fell short (16/09 and 30/09), the average response rate is 62%. Thus, the response rate remains stable, which supports the positive feedback of peer feedback.<sup>3</sup>

<sup>3</sup> We do not discuss the overall collected peer assessment scores that students gave to their peers, but note that there is no significant correlation between scoring and response rate ( $\rho = .19$ ).

*Course evaluation*

Unfortunately only a single student provided feedback on the course through the faculty-issued course evaluation form, thus the following provides only a very biased picture. This again shows that it would be better to allocate time in class to gather the feedback.

The standard course evaluation form includes only one question on benefit of student presentations. I briefly discuss its outcome next.

The student indicated to have attended 100% of the lectures, and was extremely satisfied with the subject, reporting a high benefit of student presentation (gave a score 2 out of 5, where 1 is very high). The student felt that the presentations help to build up confidence for the exam:

*It is nice that we were divided into groups at the start of the semester. I think the student presentation part of the course has been very nice (even though it is bit intimidating presenting a scientific paper in front of the class, but I guess that helps build some confidence for the oral exam).*

*Focus group feedback*

Four students volunteered (2 Danish participants and 2 from abroad). The 1:1 interviews were held in December 2015, a month after the end of the course. All of the students agree that it is beneficial to give student presentations in the first semester, i.e., “to bring everyone on the same level”, or “to practice for the exam”. However, the benefit of learning from (listening to) student presentation was mixed, i.e., “it really depends on who is presenting it”, or, “I didn’t gain so much from the presentations, because I was only listening and not forced to work with the material itself”. Despite this, all students liked the peer feedback. One of them liked the feedback from the second round more, where the focus shifted towards content. Most of the students liked the fact that the feedback is in written form and especially appreciated the comment section. One suggestion regards: “[peer feedback] is beneficial, but maybe pick out a point or two on which the feedback will focus on”. The students appreciated having a lecture devoted to presentation skills in the beginning of the course.

*Exam*

From the  $n = 24$  students, 22 attempted the exam in January 2016 (one student followed the entire course although he didn’t need credits, and one

student was absent due to illness). I felt that the students were overall very well prepared, some of them delivered excellent presentations and engaged in a discussion at a very high level. All 22 students passed the exam (last year, two students failed at the first attempt). This further supports the effectiveness of the many considerations taken into account for this year's class.

## Conclusions

This project evaluated the effect of peer assessment on student oral presentations during a first-year Master levels course. Peer feedback was perceived to be beneficial, and response rate remained on average constant. One concrete pedagogical challenge in peer feedback is allocating sufficient time for feedback.

In addition, an important pedagogical lesson that I have learned during the course of this project is that many of the issues that may arise during teaching all go back to *misalignments*. Its consequences manifest themselves in many different forms, from diverging expectations, reduced engagement, disturbed climate in the classroom, which in turn might hinder feedback, to, ultimately hampered student efficacy and learning. It is thus of major importance to plan a course well ahead, get to know the students in the first weeks, set the didactical contract and link expected outcomes, content and assessment.

## References

- Biggs, J. & Tang, C. (2007). *Teaching for quality learning at university* (3rd ed.). Open University Press/McGraw Hill.
- Goering, L. (2003). Planning student presentations.
- Liu, N.-F. & Carless, D. (2006). Peer feedback: the learning element of peer assessment. *Teaching in Higher Education*, 11(3), 279–290.
- McMillan, J. H. (2013). *Sage handbook of research on classroom assessment*. SAGE Publications, Inc.



## A Appendix

### Peer review form

Presentation: Roy et al., (2015) "Classifying Instantaneous Cognitive States from fMRI Data"

#### Content

##### 1 - Structure: Was there a clear introduction and conclusion? \*

1 2 3 4 5 6 7 8 9 10

a lot could be improved           excellent

##### 2 - Content: How informative was the presentation? \*

1 2 3 4 5 6 7 8 9 10

a lot could be improved           excellent

##### 3 - Reflection: Was there a clear self-reflection/critical assessment on the article? \*

1 2 3 4 5 6 7 8 9 10

a lot could be improved           excellent

#### positive

- good understanding of material
- good overview
- highlighted important points
- combined motivational and technical material well
- explained hard ideas well
- highlighted shortcomings and devised directions for future work
- related to other research/research problems

#### negative

- important points lost in too many details
- poor understanding of material
- at times seems just repetition of main keywords without showing understanding
- some technical errors

#### Comments on content including discussion: \*

Further comments on the content of the presentation, including your thoughts on the discussion/Q session:

#### Presentation style

In this section, evaluate how the presentation was delivered.

##### 4 - Presentation style \*

Which overall score do you give to the presentation?

1 2 3 4 5 6 7 8 9 10

a lot could be improved           excellent

#### positives

- confident
- clear
- well prepared
- good timing
- well in control of the sequence, pacing and flow of the presentation
- clear slides
- right amount of material per slides
- examples used well
- diagrams/figures/tables used well

#### negatives

- confused sometimes
- voice too quiet
- ran overtime/undertime
- not well in control of sequence, pacing
- slides too crowded
- font too small
- typos on slides
- omitted illustrative examples

#### Comments on Delivery

Further comments on the delivery of the presentation:

Fig. 29.3: Peer feedback form used in the second half of the class.

All contributions to this volume can be found at:

[http://www.ind.ku.dk/publikationer/up\\_projekter/improving-university-science-teaching-and-learning---pedagogical-projects-2017---volume-9-no.-1-2/](http://www.ind.ku.dk/publikationer/up_projekter/improving-university-science-teaching-and-learning---pedagogical-projects-2017---volume-9-no.-1-2/)