

Peer feedback among international PhD students

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Summary. This presentation of my project mirrors my own development in thinking about feedback and formative assessment. In the first part, Problem statement and intervention design, I discuss peer feedback without defining precisely what I mean by this concept. That is done deliberately as I was not myself very precise in my thinking about feedback at the time of designing the project. In later sections I develop my thinking about feedback, to the broader concept of formative assessment.

Problem statement and intervention design.

This project concerns the introduction of peer feedback at the Introduction course for new PhD students at Science, University of Copenhagen. The course was initiated by the PhD school at LIFE in 2007, and it is a five days' intensive residential course, off campus. The participants submit two assignments, one is an essay on Responsible Conduct of Research and the other is a Personal Development Plan (PDP). Throughout the years the course teachers have provided feedback to course participants on their PDP assignments. The aim was to provide formative feedback in the spirit of helping them to think further and encourage them to use the PDP for the annual Performance and Development Review (MUS) and Progress Assessment Reports (PAR). The cost of the course is covered by the PhD school, but the department (IND) only makes a surplus when the course has more than 19 participants due to the high level of 'confrontation time'. As course responsible I have been asked to cut the time that course teachers spend on

this course, for the department to generate an overhead to fund research. As the feedback on assignments is time consuming, this is an obvious place to cut teacher time. This is not a particular problem for our department, as this quote by Boud and Molloy, 2013, p. 703, indicates: ‘The practical dilemma of higher education is that the amount and type of feedback that can realistically be given is severely limited by resource constraints...’

Financial sustainability was the trigger to consider peer feedback on PDP assignments. However, as I engaged with the concept of peer feedback I could see the advantages of using peer feedback to enhance learning. Usually one or two participants seem lost, do not ask for help, and submit very meager assignments. Through peer feedback help will be ‘forced’ on them, and they get to see other PDPs and can learn from their peers. Further, the process of giving feedback will help them understand the concept of the PDP and the criteria for a good assignment, and this will help them build capacities in self-assessment and self-regulation for their own future competence development. There are a number of studies that indicate that both the one providing feedback and the receiver learn from the peer feedback process, e.g. Althausser and Darnall, 2001; Cho and Cho, 2011; Li, Liu, and Steckelberg, 2010. Hence, by giving feedback to their peers, it is our hope that all course participants will grasp the ideas of the PDP and submit good assignments. This will ease the effort needed for teacher feedback as it is the lower quality assignments that are most demanding to assess and comment on.

Problem statement

The aim of this project is to increase financial sustainability and enhance the learning environment at the Introduction course for new PhD students at Science through the use of peer feedback on assignments.

Before describing the intervention design I will provide a bit more of the context of the PDP assignment. The Intended Learning Outcomes (ILOs) for the course include:

- To position you to take charge of your PhD studies
- To take steps to co-manage the working relationship with your supervisor(s)
- To be able to navigate the personal / individual aspects of your PhD studies (e.g. work/life balance, motivation, stress)

The course activities and the PDP assignment urge participants to think about their present competencies, their career plans and goals, and make plans for competence development throughout their PhD. The PDP also includes sections on work-life balance, networking and collaboration with supervisors.

One objective we strive for under the first ILO, taking charge, is to raise awareness about the kinds of feedback they can get from peers and supervisors as a way to develop their competencies throughout their PhD. We do this through a session about feedback, and we discuss specific vs. general feedback, the idea of constructive feedback, and during the last year also formative and summative feedback (Black and Wiliam, 2009). The main goal is to equip participants to discuss their expectations for feedback with their supervisors, and we aim to achieve this by having them work with assessment themselves. Here we take the constructivist view of learning for granted; that learning is enhanced through active engagement. I find the social constructivism meaningful in this context (Dolin, 2015; Dysthe, 1995), as interaction and communication about feedback enables the participants to ascribe meaning to the types of feedback.

I also believe this is very important for a good PhD process to be able to ask for help, including feedback, and hence also to be able to give feedback to others for reciprocity. It falls under the concept of relational agency, which has been defined by Edwards and D'arcy, 2004, p. 149, as the 'ability to seek out and use others as resources for action and equally to be able to respond to the need for support from others'. The relevance for doctoral education has been established by e.g. Hopwood, 2010. Giving and receiving feedback thus supports the main ILO of the course, taking charge of PhD studies, but it may deserve an explicit new ILO to be added to the course.

Intervention design

The intervention was designed to introduce peer feedback on the PDP assignments through a number of steps:

1. Organising a meeting in the teaching team to explicate the criteria we use in giving feedback on PDPs.
2. Writing up the 'peer feedback criteria' and sharing with the teaching team. The peer feedback criteria should be written in a way that encourages course participants to ask questions that can help the author of the PDP to think further.

3. Testing the peer feedback criteria while giving feedback on PDPs from the June course.
4. Instructing course participants at the September course to give feedback to two peers, so that each participant receives feedback from two others.
5. Comparing the PDP assignments submitted with earlier assignments, to see if we can judge whether the quality increases.
6. Constructing and distributing a questionnaire to get feedback from participants after the assignments have been approved, to learn how they perceived the peer feedback.

Based on these experiences the next iteration of the course will be developed, with reference to experiential learning cycle developed by Kolb, 1984.

Feedback and assessment

In its simplest form feedback is a piece of information, written or oral, given to students, almost synonymous with telling students what to do next. This builds on the assumption that if only students do as they are told, they will improve their performance (Boud and Molloy, 2013). The question is if this is actually feedback, or only information. Boud and Molloy, 2013 continue with discussion of the feedback loop; 'The cycle needs to be completed. If there is no discernable effect, then feedback has not occurred'. A discernable effect requires an assessment of student performance in two subsequent tasks, first an assessment of competencies in one task, and a subsequent task in which the student can demonstrate their learning. This corresponds with the framework of Hattie and Timperley, 2007 where feedback is the assessment of a first task, feed up is setting (reachable) goals for development and identifying the gap, and feed forward is the steps needed to close the gap. While I definitely concur with the idea of the feedback loop, I find it problematic to change the concept of feedback into something that occurs rather than something we give, as it becomes a bit radical to change our everyday language of 'giving and receiving feedback'. But Boud and Molloy, 2013 have an important point in that feedback 'needs to be conceptualized as an explicit part of the design of the course or programme' (p. 702).

Setting *reachable* goals during feed-up (Hattie and Timperley, 2007) refers to Vygotsky's concept of Proximal Zone of Development (PZD) (Dysthe, 1995; Vygotsky, 1978). If the goals are too high, the gap becomes too wide for the learner to fill. The consequence is that feedback needs to be balanced for the learner to find it meaningful to engage with the challenge. In the PZD learners can succeed when getting help from adults/ teachers/ more experienced others. The wider the gap, the more help is required for the learner to succeed. This is referred to as scaffolding, and engaging in dialogue with others is a fundamental aspect of scaffolding (Dysthe, 1995). Topping, 2010 mention other means of scaffolding, like guiding prompts, sentence openers, and cue cards.

It should be clear from above that feedback is not possible without assessment. (An exception may be non-evaluative feedback, which is a very useful approach described by Elbow and Belanoff, 1995, but I am not dealing with that concept here). Assessing the quality of a product or the competencies of a student is necessary in order to facilitate further learning (as in formative feedback). In the introduction I stated that we provide 'formative feedback' for the course participants to take the PDP with them for further use in their competence development. The consequence of taking the proximal zone of development seriously is that students will not get the same level of feedback. If feedback is given based on assessment of each individual student's task and aimed to help them move on from where they are, then reliability of the assessment becomes low. This type of feedback cannot be used for third party as information on students' level, but rather for formative feedback to support further learning. On the other hand, when the feedback is aimed at the individual then validity of the assessment of the individual becomes higher.

The formative – summative divide seems quite clear at a first glance; formative feedback is feedback *for* learning while summative feedback is feedback *of* learning. However, even summative assessment, the assessment of learning outcomes, can be used formatively when students are involved in the process. The concept of formative assessment is broader than assessing a product or competence, and formative assessment involves feedback as one element (Black and Wiliam, 2009). Aspects of *formative assessment* include activating students as resources for one another and as owners of their own learning.

Taking this a step further would be to involve students rather than activate them. This is implied in the model developed by Dolin, 2015 and Harlen, 2013.

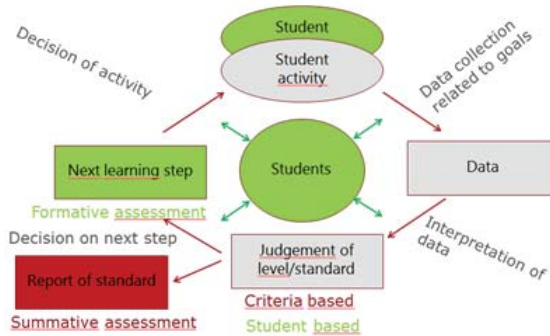


Fig. 6.1: A model of formative and summative assessment, developed by Dolin, 2015 and Harlen, 2013. (reproduced here with kind permission from Jens Dolin)

The formative assessment is indicated in green as students are involved in the whole process of defining criteria, collecting and assessing data (own and peers' performances) and deciding on the next steps in the learning process. Involving course participants in defining criteria would help them engage with the criteria.

A last aspect that I would like to touch on here is the competencies developed through peer assessment. Topping, 2010 points to the 'longer-term benefits with respect to transferable skills in communication and collaboration' (p. 395) as well as 'ancillary benefits in terms of the self-regulation of one's own learning' (p. 396). Boud and Soler, 2016 use the term *sustainable* assessment to indicate assessment with a forward looking dimension that prepares students to meet their future learning needs, thus equipping students for judgement and decision-making beyond the timescale of a course. Both peer and self-assessment could be added as ILOs for the course to emphasise the importance for these competencies in PhD education and beyond.

Implementation

Earlier explication of criteria was mainly done among teachers by sharing old assessments and feedback with new teachers and through co-assessment of PDPs that we were in doubt about. The core team of teachers discussed

assessment criteria that we have (more or less tacitly) used when giving feedback. The criteria have been written up and provided to course participants. The criteria were used for assessment and feedback in the June course, and they were meaningful and useful as reference.

Designing peer feedback groups

Groups were deliberately designed for internal variation based on our experience with assessing PDPs throughout the years. Although we did not make any systematic investigation of reasons for submitting thorough or meager PDPs, we do have insights based on face-to-face feedback sessions with participants in earlier versions of the course. Some participants have difficulties in grasping the idea of making a development plan as they are not used to work with ‘soft sides’ of their own development (being Scientists), or because the cultural differences constitute a barrier for their understanding. Some also have language difficulties to add to that. Others do not find the exercise meaningful, or sense that their supervisors would not appreciate them spending time and effort on developing a PDP. Others again do not have the time, or do not prioritize the PDP over other tasks. Hence the parameters used for designing internally varied groups were mainly societal (national/educational) background, gender and level of participation during the first course days (engagement) assumed to reflect their potential for working with the PDP. In the September course we made groups with one Dane and one Chinese in each group, and distributed the rest to make variation in gender and engagement.

Technicalities of peer feedback in Absalon

The September course was the first time for us to use Canvas as LMS (‘Learning Management System’). Canvas has a function for peer feedback that requires (enforces) peers to give feedback, and I had set up course participants in that system manually, so that each participant would give and get feedback from two others. This system is based on ideas of controlling that participants do what they are supposed to, which actually goes against our aim of putting participants in charge of their PhD studies. I was a bit hesitant to introduce this system during the course, and very relieved when introduced me to another option. Some colleagues from another department had discovered that it is possible to organize participants in groups and assign a sub-site for each group where they can upload and download

documents as they wish. This option was not described in Canvas guidelines, and he and his colleagues discovered it incidentally. This was exactly the kind of feature I would like to use, because it leaves the activities up to course participants to organize. It may take more work to get them to use it, and it may scaffold the insecure participants more, especially if the feedback is set up in rubrics. However, Canvas as LMS asks for grading and counts the marks even if we set it up with space for comments rather than grades. Giving course participants their own space felt more right, based on my gut-feeling more than thorough investigation of possibilities.

On the last day of the course and through an announcement in Absalon, course participants were instructed to upload assignments in their group sub-site folders and give each other feedback. They were given deadlines for the draft PDP for peer feedback, feedback criteria were available to them, and a deadline for the final PDP. The hope (and hypothesis) was that there would be fewer who do not grasp the idea and this will relieve the teachers from some feedback work.

However, I still had the 'Assignments' folder for PDPs available and many participants uploaded their draft PDP in this folder. I manually moved their draft PDPs to their respective group sub-site folder, and informed them accordingly. But obviously, many participants had not found their way to the group sub-sites.

PDP assignments

The PDP assignments in the September course did not stand out as better than average. Four (out of 23) were asked to resubmit, at least 3 were meager, but acceptable, and 4-5 were really good with substantive thinking reflected in the writing. The picture wasn't any better than what we usually see, on the contrary we usually only ask 1-2 to resubmit. Thirteen participants had uploaded draft assignments in the folder for final assignments, including the four we have asked to resubmit. The activity in the group sub-sites reveals that five groups had engaged in peer feedback to varying extent, but there is no clear trend towards a correlation between peer feedback and quality of assignment.

We can gain further insights into possible effects of peer feedback by comparing the draft PDPs, the feedback provided and received, and the final PDPs submitted, and I did this for eight participants. The impression is that the feedback is used actively by those who engage and need feedback. Secondly, reading other group members' assignments also seem to inspire

them. The feedback they provide reveals a lot about their understanding of the task, and using the criteria for feedback probably scaffold the development of understanding for some.

Their experiences of peer assessment

I have distributed a questionnaire to get their experience of how the peer assessment worked. I received 18 responses to the questionnaire from 23 participants. The responses indicate that peer feedback has a potential, as half of the respondents found the peer feedback useful, both in terms of giving feedback, assessing other PDPs and receiving feedback.

Of the 18 respondents, 60% found it meaningful to give peer feedback while 17% found it difficult, and another 17% did not give peer feedback (two found the technicalities of Absalon to be a barrier and two were not confident that they could provide good feedback). Similarly, 60% found the feedback criteria helpful, while 27% found it difficult to use the criteria. Reviewing other PDPs seemed to help the vast majority.

The judgement of feedback they received was slightly lower, in that 47% found the feedback useful. 18% felt they received praise that did not direct them towards much improvement, and another 12% did not find the feedback useful, and 18% did not get feedback. These experiences indicate that much can be gained through training feedback and the use of criteria during the course.

Discussion and next iteration of the course

Overall, this first iteration of using peer feedback in the Introduction course did not seem very successful in terms of higher quality assignments and less need for teacher feedback. Still, the analysis of the sample of assignments and peer feedback, and a questionnaire distributed to participants, indicate that peer feedback has potential in the course. In the following I discuss the experiences from this first iteration in the light of literature about formative assessment, and seek ways to make peer feedback more effective in the course.

Group formation

The parameters we used for group formation are by and large supported by Topping, 2010 who lists academic and social factors to consider when

matching students, like year of study and academic ability, background experience in peer assessment (good or bad experiences), culture and gender. We can be more explicit in matching participants with different background experience. This is most likely connected with educational and societal culture, which we very coarsely identify as nationality. We should of course not make too rigid assumptions based on nationalities, but this is a pragmatic choice. If we combine this with a quick survey on their experience with peer feedback (good, bad, non) we may be able to improve group formation. We could also consider forming the groups to aim at internal homogenous groups with similar experiences and goals. This can be an advantage from a learning perspective, because the participants would (ideally) engage in discussions with others at similar levels, and not rely on the experienced peers to tell or show the inexperienced how to do. However, I would prefer that they get the experience that they can help each other. And, homogenous groups would require teachers to support the inexperienced groups rather than relying on support within groups.

Integrating peer feedback in the course

Boud and Molloy, 2013 emphasise the importance of integrating peer feedback explicitly in the course rather than an add-on of information given to course participants after the course. David Boud has been a source of inspiration for me from the outset of this course in 2007 as he places learner agency as central. Especially his article with late Alison Lee about peer learning (Boud and Lee, 2005) has been essential for my thinking about the course as reflected in the first ILO: To position you to take charge of your PhD studies.

Earlier we provided feedback to participants after the course, formatively intended and balancing the amount of suggestions towards reachable goals, and for a long time supported by face-to-face meetings. What we missed out with this approach was building the competence of self- and peer assessment, developing course participants' judgement beyond the time frame of the course. The framework Boud and Molloy, 2013 suggest for sustainable feedback is characterized by involving students in dialogue and facilitating feedback processes to develop assessment capacities. This implies that feedback needs to be an integrated part of the course where course participants are trained in giving and using peer feedback. Such training is extra important for participants with limited or negative experiences with peer feedback, and as Topping, 2010 mentions 'Students from different cul-

tural background may be very different in acceptance of peer assessment' (p. 397). Developing assessment capacities in the area of generic and scientific competence building (the topic of the assignment) will help doctoral students assess their own competence development during the PhD and beyond.

The consequence of taking the proximal zone of development seriously is that students will not get the same level of feedback. When we assess the PDPs in the Intro-course we take their level as point of departure for the feedback we give, and hence reliability of the feedback is low, but it is not an assessment aimed at third party. The feedback we give is aimed at the individual PhD student and his/her work with competence development. This makes the feedback valid for the individual, and to me that is most important. Because the assessment will not be used by third party in any way, only by each individual, then reliability becomes less relevant than validity. When peers give feedback the reliability issue between assessors becomes an issue; it is doubtful that peers can give the same type of feedback as we aim at, if they did not understand the task in the first place. When reading through the feedback that they have provided each other, some of this is at the level of our own feedback, while other feedback seems somewhat off track. The set-up with groups of three is a way to ensure that all course participants will get sufficient level and quality of feedback, and this makes it important to ensure that all participants engage in the peer feedback exercise. Some provided very sparse feedback, and very few provided kinds of feedback that I felt was misunderstanding of the feedback criteria (or not using the criteria). Two respondents to the questionnaire stated that they did not give feedback because they were not confident that they could provide good feedback. This also stresses the importance of training feedback and working with the criteria during the course to scaffold them in their practice, i.e. integrating feedback in the course, as Boud and Molloy, 2013 argue for.

The feedback criteria were shared with course participants from the first day of the course for guidance and transparency, and this is in line with recommendations from literature (c.f. J. T. Gulikers and Kirschner, 2015) because it guides the learning process and supports the development of self-assessment capacities. Integration of assessment during the course opens opportunities for introducing more scaffolding, and an obvious activity would be to make room (time) for them to give criterion-referenced peer feedback on specific sections of the PDP that they work with during the course. It is also important to let them work in the group sub-sites in

Absalon to make sure that they are familiar with the technicalities. The questionnaire revealed that two respondents said they did not give feedback because the technicalities of Absalon were a barrier.

While the actual PDP assignments that they submitted were not any better than usual, the peer feedback still had an influence on my perception of how much time and effort I needed to spend on giving further feedback. Because they already got feedback from their peers I did not feel the same obligation to comment on every section of their PDPs. The Speed-grader system in Absalon supported that, since it does not invite long paragraphs of feedback. So, instead of writing comments in their PDPs, I wrote the most important points in the Comments field in Speed-grader. So, as for the first aim of this project, to save on teacher time, we did reach that. It can then be discussed whether we have been giving too thorough feedback earlier, and whether the level of feedback we provide now is sufficient. I do not have records of satisfaction to compare what they think about that. Earlier, when we sent comments by email, we often got a reply with a thank you of some sort, but the feedback given in Absalon does not invite for them to react on the feedback.

In the section about the implementation (p. 5-6) I explained my reasoning for choosing the open group sub-sites for peer feedback, and avoiding the enforcement of the Canvas system, making peer feedback required. My feeling was (and is) that enforcement and control will not support the PhD students in taking charge. However, enforcement as an extrinsic motivation may ensure that they all experience that they can give meaningful feedback, and hence lead to personal engagement and support them in internalising the value of mutually giving and taking feedback. Another aspect of this refers to reliability; if some participants get very meager or irrelevant feedback as a result of the peers not feeling adequately equipped to provide feedback, then rubrics may be a good support to ensure that everybody provides more substantial feedback. I would need to try out the rubrics among teachers first, to ensure that technicalities work and that it is perceived as meaningful. My hesitation to use the peer grading and rubrics in Canvas is linked to a sense that it removes a sense of autonomy, which again may diminish their motivation, if we consider the framework for self-determination of Ryan and Deci, 2000. This framework suggests that motivation can be supported through competence, autonomy and relatedness. The Canvas peer grading system and rubrics use a prescribed format for giving peer feedback that leaves very little room for the choosing methods, and no room for collaboration among group members. Hence, we would

miss out an opportunity to support autonomy and an opportunity for them to build collaboration among peers.

The first changes we will implement at the course are to attend to feedback *per se* on the first day of the course integrated with the first session concerning the PDP (competence mapping), and to make time for them to give peer feedback to each other in all the PDP sessions. We should also experiment with involving the course participants in defining the criteria. This will support them in building competence. We need to consider when to share the criteria with them, and avoid that they get the feeling that we 'had the answers' but did not share them. This may be a matter of how the right meta-communication.

Future development points

A question that has lured in the back of my head for some time is the relevance and authenticity of the PDP assignment. Is the PDP something that they can be asked to produce in real life? We suggest to the course participants that they update and use the PDP for their Performance and Development Review (MUS), and some do that and find it meaningful. Compared with the MUS form provided by HR, the PDP is much more elaborate and therefore supports competence development better. Authenticity and relevance is discussed by J. T. Gulikers and Kirschner, 2015, and we could develop the format of the PDP to increase relevance and authenticity, for instance by making the competence mapping in the format of a competence CV. Especially with regards to mapping general competences and giving supportive evidence for their competences is important for those aiming at a career in the private sector.

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