

Assignment 3A

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Introduction

Peer assessment (defined in this study as assessment by other student participants within a course, so excluding assessment by for instance student assistants) is an educational tool that can be used both for formative and summative assessment. Peer assessment can be used for different reasons; as an aid in learning, by providing insight in how student peers approach a problem or an assignment, or as a tool to alleviate the workload as a teacher. However, even though peer assessment can offer clear advantages and is regularly used in higher education, generally little attention is given to the potential risk that the quality of assessment will be more difficult to ensure and safeguard. By delegating part of the assessment tasks to students who are likely not trained or skilled in student assessment, additional measures may need to be adopted to ensure assessment competence. To address this issue, my in-depth research will focus on the following questions:

- Does the use of peer assessment adhere to the current rules and regulations regarding assessment in the Biomedical Engineering (BME) program?
- Are the rules and regulations sufficient to safeguard quality of assessment in the case of peer assessment?

To answer these questions, the following actions are planned:

- To answer the question whether peer assessment adheres to the current rules and regulations, I will examine the relevant documents listing these rules.
- To gain a better understanding on how peer assessment can affect the validity and reliability of assessment, I will perform a literature study on this topic.
- To gain insight on whether peer assessment is seen as a possible concern in terms of safeguarding quality of assessment within examination boards, I will have a meeting with a member examination board BMT/BME and examination board BMS management sciences and interdisciplinary sciences.
- To get information on how peer assessment is valued in the BMT/BME program, I will have a meeting with the Program Director Biomedical Engineering.

The in depth study

Rules and Regulations

The current rules and regulations regarding assessment in the BME program and the law on higher education do not specifically mention peer assessment or other forms of assessment by students. The law on higher education stipulates that 'the examination board assigns examiners for the conduction of exams and for the assignment of the results thereof'.¹ The law on higher education does not further describe the requested profile of these examiners, but describes that it is the task of an examination board to 'establish guidelines for the evaluation and grading of tests and exams'.²

The Rules and Guidelines of the examination board BME stipulate that the examination board assigns examiners, who are responsible for the grading of exams and tests. In order to safeguard the quality of examination, the examination board of the BME program has defined that a) the educational level of the examiner is one level higher than the level of the course for which this person is appointed as an examiner, and b) the examiner must possess sufficient teaching qualifications, in particular in the area of examination.³ It is expected that an examiner has at least a University Teaching Qualification, is currently in the process of getting one, or has an exemption based on experience.

The quality assurance framework for student assessment UT, the general OER TNW and program specific OER BMT/BME, and the assessment policy document of the Health programs UT, do not provide additional guidelines regarding peer assessment or examiner qualifications.

¹ Wet op het hoger onderwijs en wetenschappelijk onderzoek, artikel 7.12c.1; Geraadpleegd op 31-03-2023.

² Wet op het hoger onderwijs en wetenschappelijk onderzoek, artikel 7.12b.1; Geraadpleegd op 31-03-2023.

³ Rules and Guidelines of the Examination Board for the Master's Programme BME, July 14th 2022

Based on this examination of the standing rules and regulations, it can be concluded that there are no rules or guidelines that specifically take into account peer assessment or other forms of assessment by students. The rules clearly state that the examiner is responsible for the assignment of grades and that the examiner should possess sufficient teaching qualifications in the area of examination. So based on this, the rules and regulations are sufficient to safeguard the quality of assessment in the case of peer assessment, as long as the assessment is organized in such a way that the examiner is capable of properly evaluating the quality of knowledge and skills of the examined students.

Literature study on peer assessment

I performed a literature study for the preparation of my assignments in module 2 of the SUEQ course. This provided me with valuable insights regarding the relation between peer assessment and the validity and reliability of assessment.

For a good assessment validity, it is important that the peer-assessment focuses on the correct content, at the correct level. This is especially important if the peer-assessment is used as a summative evaluation. Even though it has been noted that the traditional criterium of validity is not always relevant when the assessment is used as a formative tool,⁴ a proper alignment with the learning objectives and the intended level of mastery is still important for an optimal learning experience. A misalignment may result in an over- or underestimation of their own learning progress by the assessors. All in all, for good assessment validity, it is important that the assessment process and the assessment criteria are clearly defined by the examiner, in such a way that it is clear for the student assessors what should be assessed according to which criteria.

When using peer-assessment, works are assessed by a group of students, who are generally not trained or qualified to perform assessments. As such, the reliability of the assessment is a crucial factor that can potentially be negatively affected by the use of peer-assessment. Additional measures and boundary conditions may need to be defined in order to ensure that students are awarded their study credits based on a just and fair evaluation instead of unfair or biased peer assessment. It is also important that there is consistency in the appraisal and that the same criteria and conditions are used for all students who are evaluated. In order to ensure this, the following should be considered:

- Literature showed that reliability of peer-assessment by students can approach assessment by experts when assessment criteria are clearly defined.⁵ As such, clear instructions and a clear rubric are crucial.
- A blinded or double-blinded assessment approach can help to reduce biased scoring where students for instance score the work of friends higher than the work of non-friends, or where student assessors may not feel comfortable to provide critical feedback to specific individuals.
- As multiple biases can arise when using summative peer assessment, every student should be assessed by multiple other students to ensure a high level of reliability. A study by Cho *et al* suggests that every student should be assessed by four to six peers to achieve high reliability.⁶ It has further been pointed out that making students aware of their biases decreases the bias and improves assessment reliability.⁷
- Students peer assessment can result in different results, including rating (cardinal evaluation), ranking (ordinal evaluation), or the provision of feedback. Even though cardinal evaluation generally most resembles the evaluation situation when peer-assessment is not used, it may not be the optimal option for peer assessment. In a study by J.T. Venderink, students recurrently expressed negative perceptions on the use of cardinal evaluation in peer assessment.⁸ Even if there is still a teacher involved in establishing the final grade, this sentiment is not beneficial for the willingness of students to take part in peer-assessment, which can negatively influence assessment reliability. Other papers have also

⁴ The interplay of evidence and consequences in the validation of performance assessments, S Messick (1994), *Educational Researcher*, 23; p13-23

⁵ The importance of marking criteria in the use of peer assessment, P Osmond, S Merry, K Reiling (1996), *Assessment and Evaluation in Higher Education*, 21; p239-250

⁶ Validity and reliability of scaffolded peer assessment of writing from instructor and student perspectives, Cho *et al*, (2006), *Journal of Educational Psychology*, 98(4); p891-901

⁷ Peer and self assessment in massive online classes, C Kulkarni *et al* (2013), *ACM Transactions on Computer-Human Interaction*, 20(6); p1-31

⁸ Using peer assessment in online courses: a qualitative approach to deciding which behavioural and structural variables to incorporate in MOOC design, J.T. Venderink (2022) MSc thesis Utrecht University

stipulated that ranking is better than rating, as this form can help to reduce noise and bias in the assessment.⁹

Meeting with member examination board

I had a meeting with the member of the examination board BMT/BME and examination board BMS management sciences and interdisciplinary sciences. In her experience, peer assessment has not been previously identified as a potential point of concern regarding the safeguarding of assessment quality. In the programs that she is involved in, peer assessment is mainly based as a formative tool and is only used in a summative way for the differentiation of group project work with for instance a focus on the assessment of working in a group. As such, summative peer assessment will only have an effect on a partial grade, which will have little impact on the final grade of a project or course. However, from a didactic point of view, (summative) peer assessment could be used more often within a program to diversify assessment, as long as there are clear guidelines for its proper use. Also, (summative) peer assessment and the assessment by non-qualified assessors may become a more important topic in light of challenge based learning. Even though this may not directly affect assessment quality within a program, a focus on increasing assessment quality for teachers who use (summative) peer assessment may be useful. All in all, she indicated that she does not have the idea that the use of peer assessment is currently something that needs to be addressed in terms of safeguarding assessment quality in the BME or BMS program. As such, a focus on this topic would be more proactive than reactive.

Meeting with program director Biomedical Engineering

I had a meeting with the program director of the programs BMT and BME. She sees peer assessment mainly as a valuable learning tool, which should generally be used in a formative form. Within the BMT bachelor program peer assessment is used as a partly summative tool in module 4 and 8, but the main focus there is to use it as a learning tool to learn how to give feedback on each other's work and to learn from each other's work. As such, the summative aspect is limited to a small part of the project grade. She is critical on using peer assessment as a summative tool and this is not something she thinks should be stimulated or that she wants to include more in the curriculum. The examiner should remain responsible for the grading of work. Summative peer assessment can be included in courses, but then it should be done in such a way that the results are reliable. For this, teacher guidelines on the proper implementation of summative peer assessment would be useful.

She indicates that she currently does not have a good overview on whether summative peer assessment is used, especially in the MSc program, and whether this is a problem in terms of quality of assessment. She indicates that she would not be in favor of supplying guidelines on how to properly implement summative peer assessment to all teachers, as it may stimulate the use of this assessment format. To prevent this, it may be better to first find out which teachers are using (summative) peer assessment and then to provide those teachers with guidelines.

Conclusions based on my in-depth study

Based on my in-depth study, I can conclude that there are no rules or guidelines that specifically take into account peer assessment or other forms of assessment by students. Additionally, the use of summative peer assessment is not necessarily a threat to the quality of assessment, as long as the assessment is organized in such a way that the examiner is capable of properly evaluating the quality of knowledge and skills of the examined students. Finally, the use of summative peer assessment appears to be limited in the BMT/BME program, but a good overview is lacking, especially for the MSc program.

Even though the problem appears to be limited within the BMT/BME program, the use of summative peer assessment can still negatively affect the task of the examination board to safeguard the quality of assessment within the program. Even though it is possible to use summative peer assessment in a way that safeguards the quality of assessment, doing so is complex and will require training of the examiner. As such, the risk of summative peer assessment is mainly related to the 'quality of examiner' layer of the quality of assessment triangle. As there is no overview on the use of summative peer assessment in the MSc program, it is unclear whether this risk is hypothetical or actually present. Obtaining a good overview will not only be needed for valuing the potential risk, but is also important for the assessment program layer of the pyramid, as this layer should provide a good overview of the different assessment methods used in the program. However, even when the risk is hypothetical,

⁹ A Case for Ordinal Peer-evaluation in MOOCs, N.B. Shah *et al*, (2013), 1-10

proactive action can still be taken, especially since (new) courses may be developed or adapted in the future to contain summative peer assessment.

Based on my study, it can be concluded that both the program director and the examination board are not in favor of using summative peer assessment extensively in the program, which is a point of view that could be explained in the assessment policy of the program. Given that the aim of both the examination board and the program director is not to stimulate the use of summative peer assessment, the proposed action is not to pre-emptively train all teachers in the program with the aim to enhance the quality of examiners in the area of peer assessment. Instead, the examination board can advise the program director to take the following steps:

- To prepare an instruction leaflet containing the rules and best practices for the use of summative peer assessment
- To ask the Program Committee (OLC) and Quality Assurance Committee (OKC) to carefully assess whether (new) courses use (summative) peer assessment. This can be part of the regular course assessment cycle.
- In cases where the use of summative peer assessment is identified, to supply the examiner with the instruction leaflet.