

LEARNING THROUGH PEER ASSESSMENT: STUDENT PERCEPTIONS BEFORE AND AFTER PARTICIPATION

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Abstract

This study aims to find out how students perceive the usefulness of peer assessment for learning in the context of reading circle discussions in higher education before and after participation, and furthermore reflect which factors related to the implementation of the peer assessment promoted or hindered learning. Results compare student expectations and experiences of peer assessment and furthermore show that majority of students both expected and found the peer review process to be useful or very useful. The clear evaluation matrix and iterative nature of peer assessment supported learning. Receiving and giving feedback helped students in analysing and reflecting on their own activities. Overall, the peer assessment seemed to support the analytical and critical approach among students and enhance their self-knowledge. At the same time, the results highlight areas for development in the peer assessment practices that could further promote learning by raising the level of given peer feedback. These development areas are rater training, course incentives for high-quality feedback, and the emphasis on the learning benefits of giving feedback.

Keywords: *Peer assessment, learning, reading circle discussion, survey, higher education.*

1. Introduction

Peer assessment can be defined as an action where “students judge and make decisions about the work of their peers against particular criteria” (Adachi et al., 2018, p. 295). Studies have shown the effectiveness of peer assessment in promoting learning (Double et al., 2020; Li et al., 2020). However, there are challenges in peer assessment (Adachi et al., 2018) and many factors impact on whether, how well and under what conditions peer assessment promotes students learning. In this study, peer assessment was implemented and studied in the context of student-led reading circle discussions. Compared with previous studies on peer review, the context in which the *performance in discussion* is evaluated by peers is rather unique. In previous literature, tasks that are typically rated when assessing the effectiveness of peer review are written assignments (Li et al., 2020). The concept of reading circle discussion resembles the concept of talking circles (Chacon et al., 2023) by being a weekly student-led small-group discussion in consistent groups but differs from it, e.g., by being a rather long discussion monitored and evaluated by the teachers. It is important to study how peer assessment is experienced in this specific context. This study aims to find out *how students perceive the usefulness of peer assessment for learning in the context of reading circle discussions before and after participation*, and furthermore reflect which factors related to the implementation of peer assessment promoted or hindered learning.

2. Learning through peer assessment

Previous studies on students’ perceptions of peer assessment show that students generally see peer assessment positively (Mulder et al., 2014; Nicol et al., 2014; Planas Lladó et al., 2014). Peer assessment has potential to improve learning in various ways, for example, by developing learners’ critical thinking abilities and evaluative judgment and helping them to become more independent thinkers and practitioners (Tai & Adachi, 2019). Two recent meta-analyses of peer assessment impacts imply that peer assessment has positive effects on academic performance and learning (Double et al., 2020; Li et al., 2020). The most critical factor influencing positive peer assessment effect on learning was rater training (Li et al., 2020). Anonymous peer assessment could also provide certain advantages in terms of learning, such as delivering more critical feedback (Panadero & Alqassab, 2019). Thus, it is evident that the peer assessment context and practices impact on the learning outcomes.

3. Research context and method

The study was conducted in the context of higher education, in a Finnish university with master level students. In this study, peer assessment was studied in the context of reading circle discussions, where the task being evaluated is the student's performance in the discussion, and students need to prepare for the discussions by familiarizing theoretical material beforehand. The reading circle discussions were designed as a format, where six discussion sessions of 90 minutes were held during the course. The discussions were conducted in small groups of six students, where one of the students acts as a chair and one as a peer reviewer assessing the work of the others. The performance of each discussant is assessed by the peer reviewer by using the peer assessment rubric/matrix and a form, giving both comments and grades on scale 1–5, so the purpose was both formative and summative, and feedback non-anonymous. The peer assessment rubric was based on three criteria of which two were focused on the content of discussion and one on discussion skills. Extra criterion was for the work as a chair/facilitator of discussion. Discussions were student-led, where the assigned chair had the leading role, and teachers did not participate in the discussions but monitored them. Final grades of the reading circle discussion performances were formed based on the teachers' overall evaluation, taking into account the peer assessments. Peer assessors' work was evaluated on scale pass/fail.

Data was gathered from seven course implementations (three virtual, four face-to-face) during 2021–2023 by pre- and post-surveys. Table 1 presents this empirical data. Survey respondents represent the course participants quite well: altogether 57 % of course participants (n=82) answered both surveys. The students were Finnish-speaking, except for one course implementation, which was organized in English and where the cultural backgrounds of students were diverse. About 90 % of the respondents had previous experience on peer assessment in their university studies before this course.

Table 1. Empirical data.

	Course implementation (time, course name abbreviation)	On campus / Virtual	Finnish /English	Pre- and post- survey respondents	Participants in the course
1	2021 Fall Leadership	Virtual	Finnish	11	17
2	2021 Fall Sustainability	On campus	English	16	18
3	2022 Spring Leadership	Virtual	Finnish	16	22
4	2022 Spring Sustainability	Virtual	Finnish	11	29
5	2022 Fall Leadership	On campus	Finnish	6	12
6	2023 Spring Leadership	On campus	Finnish	6	7
7	2023 Fall Leadership	On campus	Finnish	16	38
				82	143

Pre- and post-surveys were based on the study by Mulder et al. (2014), who also studied students' perceptions before and after participation in peer review. Thus, both students' expectations and experiences of peer assessment in reading circle discussions were studied. The pre- and post-survey questions are presented in Table 2. The survey data was analysed both quantitatively and qualitatively. Descriptive statistics were used for the closed questions. In addition, one statistical test (Wilcoxon signed-rank test) was used to study the differences between expectations and experiences. Because the variables were measured in an ordinal scale and were not normally distributed, the non-parametric counterpart of the dependent t-test, the Wilcoxon signed-rank test was conducted to determine whether there were differences in the students' perceptions of the expected and experienced learning (question 1 in pre- and post-surveys) and in the students' perceptions of peer reviewer qualification before and after the peer assessment experience (question 3 in pre- and post-surveys). The open-ended questions yielded plenty of answers, 124 about expectations (from questions 4 and 5) and 131 about experiences (from question 5 and 6). This qualitative data was analysed by using inductive thematic analysis, where the data was first coded, then themes were searched, reviewed, and finally defined (Braun & Clarke, 2006).

Table 2. Pre- and post-survey questions (based on Mulder et al. 2014).

Pre-survey on students' expectations of peer assessment	Post-survey on students' experiences of peer assessment
1. As a learning tool, I expect that peer review will be <ul style="list-style-type: none"> ▪ Very useful ▪ Useful ▪ No opinion 	1. As a learning tool, I found the peer review to be: <ul style="list-style-type: none"> ▪ Very useful ▪ Useful ▪ No opinion ▪ Not very useful

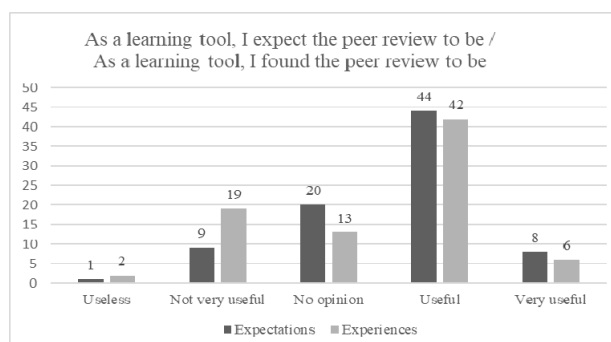
<ul style="list-style-type: none"> ▪ Not very useful ▪ Useless <ol style="list-style-type: none"> 2. I expect I will learn most from <ul style="list-style-type: none"> ▪ Giving reviews of the work of other students ▪ Receiving reviews of my own work ▪ Equal value from giving/receiving reviews ▪ Not sure 3. I think my peers are well qualified to provide me with feedback on my own work: <ul style="list-style-type: none"> ▪ Strongly agree ▪ Agree ▪ No opinion ▪ Disagree ▪ Strongly disagree 4. Describe in your own words what you expect to learn from the peer review. 5. What other expectations, hopes, and/or concerns do you have regarding the peer review? 	<ul style="list-style-type: none"> ▪ Useless <ol style="list-style-type: none"> 2. I found that I learned most from: <ul style="list-style-type: none"> ▪ Giving reviews of the work of other students ▪ Receiving reviews of my own work ▪ Equal value from giving/receiving reviews ▪ Not sure 3. I think my peers did a good job of providing me with feedback on my own work: <ul style="list-style-type: none"> ▪ Strongly agree ▪ Agree ▪ No opinion ▪ Disagree ▪ Strongly disagree 4. I think that I improved my reading circle work as a result of the reviews I received or gave: <ul style="list-style-type: none"> ▪ Strongly agree ▪ Agree ▪ No opinion ▪ Disagree ▪ Strongly disagree 5. Describe in your own words how the peer review affected your learning and what did you learn from it. 6. What other thoughts, comments and / or feedback do you have regarding the peer review?
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4. Results and discussion

4.1. Comparison of the expectations and experiences of peer assessment

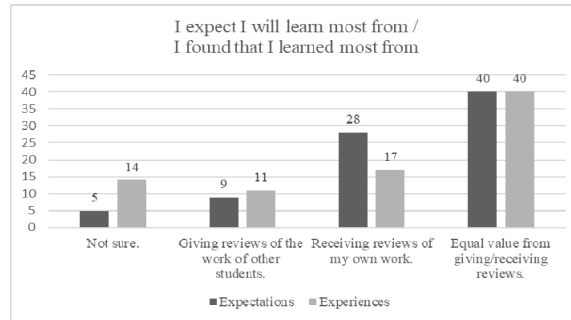
Majority of students both expected (63 %) and found (59 %) the peer review process to be useful or very useful (Figure 1). Results indicate a significant difference between the expected learning ($M=3.6$; $SD=0.86$) and the learning experience ($M=3.4$; $SD=1.00$), when using the Wilcoxon signed-rank test. Therefore, the null hypothesis (no difference between the expected and experienced learning benefits of peer assessment) is rejected, and it is concluded that there is a statistically significant difference between the expectations and experiences when assessing peer assessment as a learning tool ($Z=-1.961$, $p=0.050$). The results show that students expect peer assessment to be more useful than it actually is based on their experiences. This result corroborates the finding by Mulder et al. (2014), who also observed a positive valuation of peer assessment but a similar decrease in the perceived value of the peer assessment. However, the median was four (i.e. 'useful') for both expectations and experiences, so despite the difference, most students both expected and found the peer review process to be useful or very useful.

Figure 1. Learning in peer assessment (n=82).



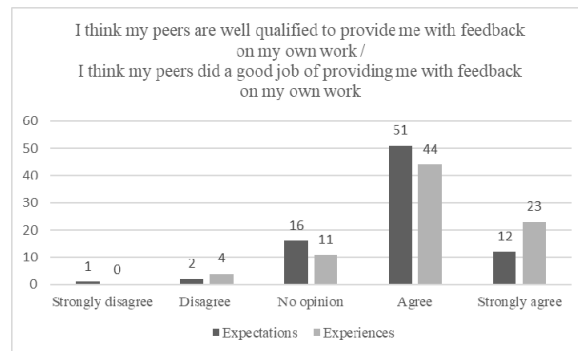
The largest proportion of students (49 %) both expect to learn, and learned, equally from giving and receiving reviews (Figure 2). However, the share of students who expected to learn from receiving reviews diminished after peer assessment (from 34 % to 21 %). The findings resemble the results by Mulder et al. (2014), who also noted that majority expected and gained learning benefits from both receiving and giving reviews. However, Mulder et al. (2014) found out that the proportion of students who think that giving/writing reviews was the most valuable part of the peer-review process increased. In this study, this was not the case as clearly but there was an increase in uncertainty.

Figure 2. Sources of learning in peer assessment (n=82).



The perceived expertise of peers was considered good both before and after peer assessment (Figure 3). Before peer assessment, 77 % of the students thought that their peers are well qualified to provide feedback, and afterwards, 82 % of the students thought their peers did a good job in providing feedback. The Wilcoxon signed-rank test was also conducted to determine whether there was difference in the students’ perceptions of peer reviewer qualification before and after the peer assessment experience (question 3 in pre- and post-surveys). The results do not indicate a significant difference ($Z=1.840$, $p=0.066$) between the expected ($M=3.87$; $SD=0.733$) and the experienced peer reviewer qualification ($M=4.05$; $SD=0.784$).

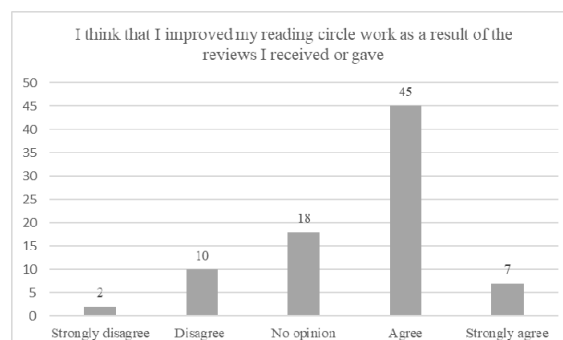
Figure 3. Perceptions of peer reviewer qualification (n=82).



4.2. Learning through peer assessment in reading circle discussions

Experiences of students suggest that peer assessment provided many learning benefits. Some highlighted the benefits from receiving development suggestions and responding to them, whereas others put more emphasis on observing and analysing the activities of others and giving constructive feedback. Both receiving and giving feedback helped in analysing and reflecting on one's own activities. Peer assessment seemed to support the analytical and critical approach among students and enhance their self-knowledge. One key learning effect was indirect: peer assessment enhanced learning in the course by encouraging to prepare well for the reading circle discussion sessions: *"I think the peer assessment was a good thing, because 'encouraged' by it, the group was active and thus the discussions were fruitful."*, summed up one student. In the post-survey, 63 % of students ‘agreed’ or ‘strongly agreed’ that their reading circle work improved because of the peer assessment (Figure 4). Mulder’s et al. (2014) findings are similar, and both suggest that peer assessment generally results in student work of a higher quality.

Figure 4. Improvement based on the peer assessment (n=82).



The central concern in many expectations towards peer assessment was that peer evaluations are not invested in and because of that they remain superficial and of no value for the assessee. As one student stated in the expectations: “Many perceive peer review as a necessary evil and an extra chore rather than an opportunity to give others really valuable perspectives and thoughts.” Experiences showed that this was also the most central perceived problem in peer assessment. Superficial peer feedback and the lack of constructive feedback were for many students the main reasons why peer assessment was not perceived as useful. In light of this, it is interesting that most respondents (82 %) however thought that peers did a good job in providing feedback. It is possible that very critical peer assessment was perceived as challenging in the context of reading circle discussions (real-time and non-anonymous), so the performance of the peer reviewer was valued anyway. Other challenges that came up were subjectivity and social biases of peer review, discomfort and the workload and difficulty.

5. Conclusions

This study showed that the peer assessment implemented in the context of reading circle discussions generally supported students' learning, although the expectations of learning were higher than the actual experiences. The clear evaluation rubric/matrix and iterative nature of peer assessment supported learning. Peer assessment also indirectly enhanced learning in the course by encouraging to prepare well for the reading circle discussion sessions. It also appears that the non-anonymous nature of peer assessment did not cause major discomfort but instead encouraged to perform well in the discussions. At the same time, the results highlighted areas for development in the peer assessment practices that could further promote learning. The need for development was related to raising the level of given peer feedback. First, more training for students on how to give feedback, could be provided. Previous research suggest that peer rating quality could be improved by training (Li et al. 2020). Second, the course design could provide better incentives for providing high-quality feedback that includes also constructive and critical points (e.g., the given peer assessments could have an impact on the grade). Third, the learning benefits of giving feedback could be emphasized more. Students themselves are less likely to recognize that value and how their role as peer assessor can contribute to their learning (Culver 2023). In future research, it would be interesting to investigate whether these practices could improve the perceived usefulness of peer assessment for learning even further.

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