

The Power of Giving Feedback and Receiving Feedback in Peer Assessment

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Abstract

Despite well-documented promises of peer assessment, it is still unclear how peer assessment works and what contributes to students' learning gains. In order to identify cognitive processes that lead to learning enhancement, this study examined 41 students' responses to online surveys and also their online written interactions when they participated in a peer assessment activity. Data analysis revealed that students were engaged in various learning processes in the phases of giving and receiving feedback. While students acknowledged that both phases contributed to their learning, a greater number of students indicated that they perceived more learning benefits from giving feedback rather than receiving feedback. Interpretations and implications were discussed.

Keywords: Higher Education, peer assessment, peer feedback, qualitative research, student engagement.

1. Overview of Peer Assessment.

The landscape of higher education has undergone massive transformations in the past few decades. These changes impact many practices and concepts in education, including assessment. Increasing attention has been paid to a broader and deeper understanding of the complex relationship between assessment and learning (Cartney, 2010). We are living in times where the call for "assessment for learning" greatly echoes the strong desire to actively engage students in their learning process and is progressively used as a drive to change the current assessment system. As stated by Boud and Soler (2015, p. 8), "*learning cannot be sustainable in*

any sense if it requires continuing information from teachers on students' work." This changing culture in education has brought back to our vision the alternative assessment approaches such as peer assessment, self-assessment, co-assessment, portfolio assessment, etc.

Peer assessment (also named peer review or peer evaluation) is a process in which students assess and provide feedback on the work of other learners of similar status (Topping, 2009). Although this approach is largely used in essay writing and language learning, it has been widely applied in various disciplines, including education, engineering, history, computer science, medicine, etc. (Li & Gao, 2016). Reported promises of peer assessment include, for instance, promoting student learning, developing student higher order thinking skills, encouraging student interaction and collaboration, enhancing student understanding of quality performance, and increasing the quantity and quality of feedback (e.g. Brown, Topping, Henington, & Skinner, 1999; Burke & Pieterick, 2010; Harrison, O'Hara, & McNamara, 2015; Peng, 2010; Pope, 2001; Topping, 2009). Topping (1998) further asserts that these benefits may accumulate before, during, and after the process.

The practice of peer assessment encompasses various forms but generally can be categorized as summative, formative, or both. Formative peer assessment fosters students' learning by engaging students in both roles of assessor and assessee. As assessors, students review peers' work and provide feedback; as assessees, students receive feedback and act upon it to improve their own products (Li, Liu & Steckelberg, 2010; Li, Liu & Zhou, 2012). During the process, giving feedback is proactive and requires students to actively study content and marking criteria, and to make judgments. By contrast, receiving feedback allows students to view their products from different viewpoints and reflect upon aspects they may have previously missed (JISC, 2015). 'Peer assessment' used in this paper refers to formative peer assessment rather than other types of peer assessment.

1.1. Giving or receiving?

It is generally recognized that both giving and receiving feedback are indispensable fundamentals in the practice of peer assessment. However, the literature does not present a completely clear picture of how these two sides function differently but serve interrelated and complementary purposes to facilitate student learning. "Few studies clearly differentiated between the effects of assessing peers versus the effects of being assessed by peers" (Topping, 2010, p. 339).

Regarding giving feedback, a handful of studies suggested a positive relationship between quality of peer feedback provided and students' own learning. For example, Althausser and Darnall (2001) conducted an online peer assessment activity, in which students reviewed each other's answers to take-home essay questions. The data analysis indicated that the better the quality of the feedback students provided during the reviewing process, the higher grades they received for their own revised essays. This finding is in line with reports that explored student perceptions. It seems that students themselves acknowledged the benefits of marking peers' work and agreed that they gained a deeper level of understanding (Davis, 2000) and they were inspired by peer work (Li & Steckelber, 2006). Regarding receiving feedback, however, findings are mixed and mainly restricted to students' perceptions. While students express their appreciation of the opportunity to actively participate in the assessment and learning process, they also state concern regarding the quality and quantity of peer assessment received (Li, Liu & Steckelberg, 2010).

In order to gain a better and fuller understanding of how peer assessment works and what makes it effective, Li and her colleagues (Li et al., 2010, 2012) conducted two studies to examine how performing different roles as assessors and assessees in formative peer assessment may contribute to student learning. Using a web-based Peer Assessment Support System, the first study (Li et al., 2010) examined two relationships: 1) the relationship between the quality of students' final project and the quality of feedback students provided when reviewing peers' work, and 2) the relationship between the quality of students' final project and the quality of feedback students received from peers to improve their own projects. Forty-three undergraduate teacher education students at a major American university participated in an online peer assessment activity by playing two roles: assessor and assessee. As assessor, each student anonymously reviewed and commented on two peers' projects that were randomly assigned to him/her. As assessee, each student received feedback from two peers and was asked to revise his/her own project based on feedback they agreed on. The findings of the study were quite interesting. On one hand, data analysis indicated a significant relationship between the quality of students' own projects and the quality of feedback they provided to peers as assessors. On the other hand, there was no significant relationship discovered between the quality of students' own final projects and the quality of peer feedback they received from peers. While this finding supported a prior research claim that active engagement in reviewing peers' projects may facilitate student learning, this study posed another interesting question: Is it true that the quality of peer feedback

has no direct impact on students' learning? If the interpretation of data analysis is valid, then does this suggest the triviality of the assessee's role in peer assessment? With these questions in mind, Li et al. (2012) identified a few possible factors that may offer some insights into the puzzling picture and also reanalyzed the data from their first study. The results, interestingly, showed that that students' improved competence to critically adopt peer feedback received (accepting good comments and discarding misleading comments) predicted higher scores in students' final projects. In other words, the finding suggests that, although the quality of peer feedback that students receive may not have a direct impact on the quality of their final projects, students' ability to critically evaluate and analytically adopt peer feedback may make valuable contribution to the quality of their projects. This intriguing finding is found to concur with those of other researchers (Boud and Soler, 2016; Lipnevich & Smith, 2009), that feedback could not be considered only as information given, but rather as a process concluding with recipients acting upon information received and improving their understanding. Simply providing students feedback does not necessarily enhance their learning. Feedback may only be proven invaluable when students reflect and act upon it. Winstone and colleagues call students' active engagement in the feedback process as "proactive recipience" (Winstone, Nash, Parker & Rowntree, 2017, p. 17).

In summary, previous research suggests that giving and receiving feedback may play different roles in peer assessment. Students' active engagement in both roles has an effect, either directly or indirectly, on their learning. As affirming as these findings are, relevant literature is scarce and mainly examined the impact of peer assessment on the quality of students' learning outcomes or final projects from the quantitative side. More research, especially qualitative studies that examine students' attitudes and behaviours when performing the two roles in peer assessment, is needed before application of the theory to educational practice is warranted.

To further examine the learning mechanism in peer assessment, the researchers decided to analyze the learning process and explore students' perceptions when they are engaged in performing both the assessor and assessee roles in peer assessment. Specifically, the present study aims at answering the following research questions:

1. What learning processes are associated with the phases of giving feedback (GF) and receiving feedback (RF) when students participate in peer assessment activities?

2. How do students perceive the impact of giving feedback (GF) or receiving feedback (RF) on their learning process in peer assessment?

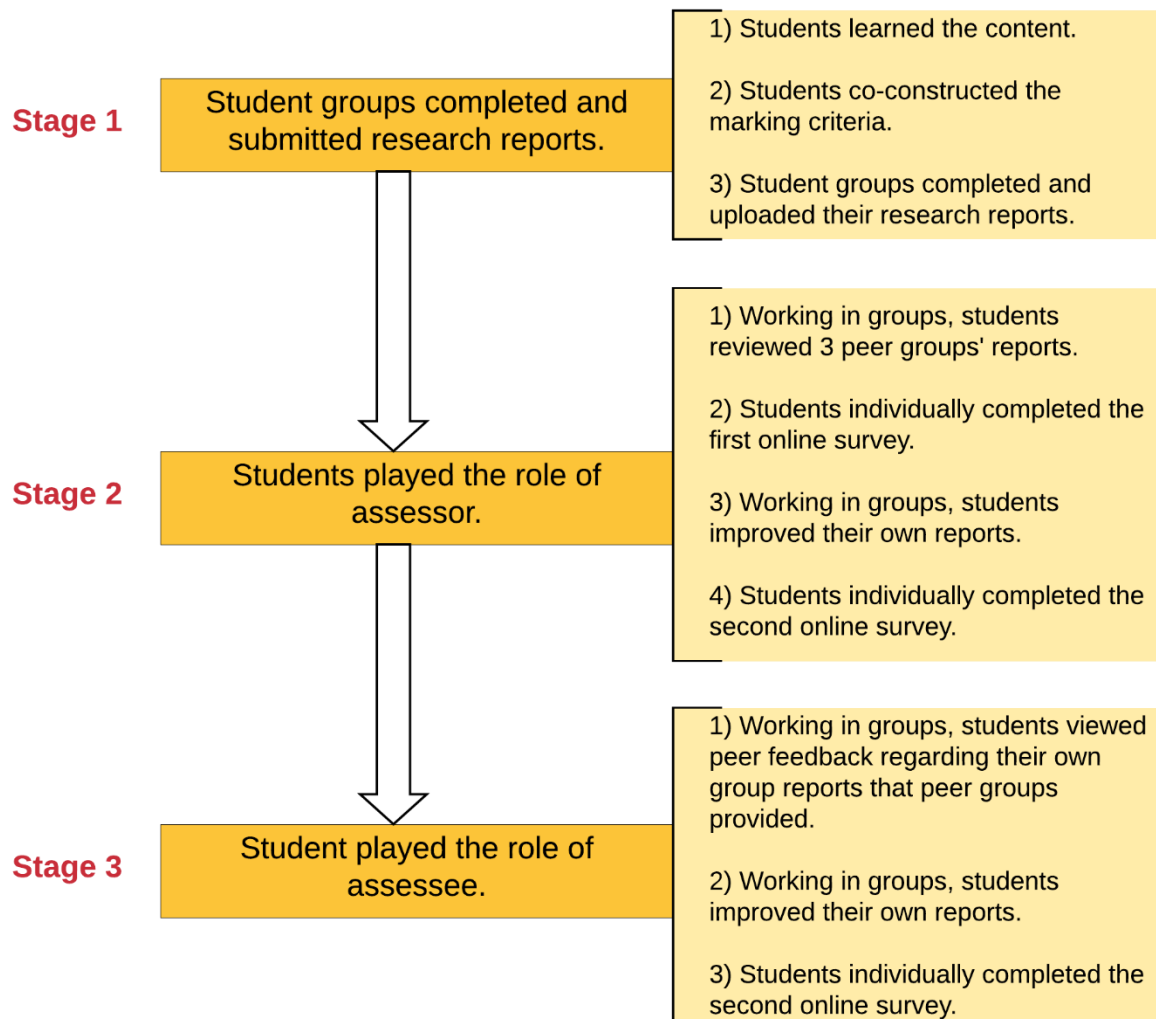
2. Methodology.

2.1. Context, subjects, and peer review process.

This paper reports a peer assessment study that was implemented within a blended Master's course on educational research at the University of Padova, Italy. Forty-one students (F=40, M=1) who were enrolled in the course entitled "Management of Educational Services and Continuing Education" in autumn 2017 participated in the study. All students were future educational managers and educators. During the seven-week class, students learned the fundamentals of research methodology. As the capstone project in this class, students working in groups of three designed and conducted a research project, and then wrote a research report. Afterwards, student groups participated in an online peer assessment activity to review peer groups' reports. Each group reviewed reports of three other groups. See Figure 1 for the details regarding the process.

Stage 1: Students learned the content, co-constructed marking criteria, and completed their research reports. In the class, students first learned the fundamentals of educational research. After viewing example reports and with the instructor's guidance, students collaboratively created and agreed upon a set of criteria that would be used when they reviewed each other's reports and in later instructor assessment. Next, students formed groups of three. Each group conducted their study and worked on their own report. When groups completed their research reports, they submitted their reports to an online Moodle system that was used to facilitate the peer assessment process. All student interactions and dialogues within their own group or between groups in each stage of the peer assessment process were recorded in Moodle. Please note that due to time constraints, students only reviewed the first three components of the research reports, namely Abstract, Introduction, and Methodology, in the peer assessment activity.

Figure1: Peer assessment flowchart.



Stage 2: Student groups played the role of assessor. There are four main steps involved in this stage. First, working in groups, students reviewed three reports submitted by other groups. During the review process, comments in regard to strengths and weaknesses of reviewed reports, as well as suggestions for improvements, were provided. Second, students individually completed an online survey. In order to capture students' perceptions about their actions and thinking during the phase of producing feedback for peers, questions asked students to explain in a detailed way any actions they undertook individually as well in their groups to create feedback for peers. Third, before receiving comments from peer groups, each group had the

opportunity to modify their own report. Almost all reports were updated with fewer or more edits at this stage. Fourth, students individually responded to a second online survey. The survey asked students what they thought they had learned from creating feedback to peer groups' reports, and how giving feedback had impacted the understanding and improvement of their own report.

Stage 3: Students played the role of assessee. This stage also consists of multiple components. First, student groups viewed peer feedback provided to their own reports. They were asked to judge the value of peer feedback and make edits accordingly to improve the quality of their reports. Second, students individually responded to the third online survey, which aimed to capture students' perceptions about their actions and thinking during the phase of receiving feedback from peer groups and how the received feedback helped them improve their own report. Furthermore, students were asked to explain and justify the learning benefits they perceived from giving feedback (as assessor) and receiving feedback (as assessee).

2.2. Data collection and analysis.

The evaluation of the peer assessment activities was carried out with the support of AtlasTi software by a triangulation of two data sets: students' responses to the three online surveys completed at various phases of the peer assessment activity, and students' online written interactions within their groups and between groups in Moodle. Three evaluators independently analyzed these qualitative data sets by following a circular and recursive process comprising phases of individual coding, comparisons, discussions, and agreement to establish a categorization of themes and corresponding codes relating to the research questions.

3. Results and Interpretation.

3.1 Processes undertaken by students when giving feedback: student responses to surveys and written interactions in discussion forums.

By analyzing the students' written interaction in online discussion forums and students' responses to the online surveys, the researchers found that the process of reviewing was a constant and cyclical process that consisted of comparisons, reflection, and progressive

refinement of growing and ever-changing ideas. It was not possible, therefore, to define the review phase as separate and distinct. Rather, it was a process transversal to the whole duration of the group work. This cyclical process seemed to contain two main types of processes undertaken by students: comparisons and feedback co-construction, both of which contributed to a third: reflective learning.

3.1.1 Learning process with comparisons

Among the three themes identified, the theme of comparisons was the most reported in the surveys and also identified in students' written interactions with the highest frequency. It seemed that students undertook different kinds of comparisons during the peer assessment activity.

Table 1: Types of Comparisons Identified Through Analysis of Students' Responses to Surveys and Online Written Interaction in the Phase of GF.

Types of Comparison.	Students' Direct Quotes.
Between students' own report and peer reports reviewed	<i>"I read and reflected upon the reports that we are assigned to review. Really well done! The reports include all critical elements that I would suggest that our own report include. I especially like the graphic representation! Elegant and effective! Perhaps ours appears a little chaotic. I would suggest to make ours more clear and logical."</i> [6:32]
Between reports reviewed	<i>"Reading the work of the other groups and seeing the common points of all three, we understand in a more simple and spontaneous way how we could improve our group work."</i> [15: 210]
Between students' own report and marking criteria when working on improving their own report	<i>"I thought a lot about our report... I've realized that we didn't do the same job [assessing our own report against the marking criteria] as we did when reviewing peers' reports. I realized that our report didn't meet all the evaluation criteria that we have identified in peer reviews... This is why I found it [the peer review process] very useful."</i> [15: 218]

As Table 1 shows, the first form of comparisons was made between the students' own group reports and the peer groups' reports reviewed when students played the role of assessor. Students compared reviewed reports against their own, to identify strengths, weaknesses, and other critical points on both. This type of comparison allowed students the opportunity to become

more conscious about the quality of their reports. These comparisons appeared to be "two-way," from one's own report to peers' and from peers' to one's own, in a circular path. The second form of comparison, although reported less frequently than the first form, was undertaken between reports reviewed. A third form of comparison took place mainly at the end of the giving process at stage 2. Students compared their own report with the marking criteria when they improved their own report. It was interesting to note that only after providing feedback to peers based on the marking criteria, some students realized that they could have performed a self-assessment using these same criteria. It seemed evident that the marking criteria, their own projects, and their role of assessor in peer assessment were better understood through a series of sequential, and also circular comparisons.

3.1.2 Learning process of feedback co-construction.

Working in groups, students collaborated mainly on two levels to co-construct feedback for reviewed reports. As table 2 shows, the first level involved a surface enactment of feedback construction. Students in each group identified or negotiated an effective method of drafting and organizing feedback from various group members. The second level involved a deeper level of learning, in which each group moved from just organizing and gathering feedback to integrating higher order thinking, such as critical thinking, problem solving, communication, and collaboration, to produce effective, meaningful, and actionable feedback to peer groups. Students appreciated the reciprocal support they received from the members of their respective groups. In the students' opinions, working with partners in a group allowed them to see a plurality of perspectives, which helped them grasp more aspects of the content learned and build better feedback for peer groups. Interestingly, some students indicated that most learning took place when they disagreed and debated with each other within their group.

Table 2: Levels of Feedback Co-Construction When Reviewing Peer Reports

Level of Feedback Co-Construction	Direct Quotes
Surface	<i>"Each member of the group highlighted positive and negative aspects for each criterion. We discussed it in a shared file on the Google Drive and on the forum. Each member then highlighted and reasoned their thought in particular where there was a shift in opinion. Finally, each member built a feedback proposal integrating it with the contributions of others. Finally, comparing ourselves as a group, we developed shared answers."</i> [15: 133]

Deeper Learning Level	<i>"In my opinion, working with peers within the group during the peer review activity has allowed the exploration and expression of different thoughts. We first shared our own thoughts in the group, then deliberated and negotiated with each other to find a common base. Our discussion allowed us to develop a more complete thought, which was enriched by the perspectives of us all." [15: 172].</i>
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3.1.3 Process of reflective learning.

The processes of comparisons and feedback co-construction with peers in the reviewing stage (Stage 2) stimulated significantly increased engagement in reflection. Through the first two processes, students were absorbed in a series of activities that promoted higher level skills. These activities included re-evaluating initial perspectives, identifying misconceptions that would not have been identified otherwise, collaborating with group members to frame and reframe different dimensions of their group reports, and negotiating with group members and agreeing upon feedback for reviewed peer reports. As a student indicated:

'Through the group work and help from partners, I was able to identify some shortcomings or "errors" of the feedback I noted down earlier. I would not be able to grasp the correct concepts otherwise. Working in a group has allowed us to integrate our points of view and produce a richer and more complete review.' [15:56]

3.2. Processes undertaken by students when receiving feedback: student responses to surveys and written interactions in discussion forums.

The learning processes students engaged in the RF phase seemed more focused on detecting and understanding the specific gaps or mistakes of their reports as identified by peer feedback they had received. As Table 3 shows, four learning processes recognized included:

- 1). Feedback Evaluation: Student groups judged the value of feedback received before they initiated any revisions. However, this was not a process adopted by all students. Some students looked at the peers' comments and immediately moved forward to modify their reports without assuming a critical position in reference to peers' feedback.

- 2). *Reflection*. In some cases, the peer feedback received stimulated a deeper reflection and proactive behaviors among the members of the group.
- 3). *Self-Assessment*. Some students realized that peer feedback was also a “tool” to stimulate their self-assessment.
- 4). *Awareness of Effective Feedback*. The students’ first reaction to the peers’ comments was not always positive. Some students stated that they found certain peer comments harsh, negative, or meaningless. This experience increased their awareness that not all feedback was equal in quality. Feedback needs to be constructed in certain ways to be effective and supportive (Nicol & Macfarlane-Dick, 2006).

Table 3: Learning Processes Occurring When Receiving Feedback from Peer Groups.

Learning Process	Direct Quotes
Feedback Evaluation	<i>“At this point, before we blindly follow and adopt feedback received, I think it is necessary for us to ‘evaluate’ it first. By saying that, I do not mean that feedback should not be taken into consideration. But we must consider it only as ‘one’ point of view.”</i>
Reflection	<i>“Now we have the peer reviews back. We need to make decisions regarding what to do with our report... They suggested we shorten our theoretical framework to make it more coherent. Frankly, I think this is a valid suggestion that we can consider. But I don’t agree with their other suggestions.” [10:36]</i>
Self-Assessment	<i>“The fact that two groups out of three reported the overly structured issue of our work stimulated me to reread our report with a more critical eye... Actually, I think we could make some small changes to make our interview questions more open-ended.” [1:23]</i>
Awareness of Effective Feedback	<i>“Meanwhile, I want to say that to be really useful a feedback must have at least some explanations. Having to read only the ‘yes’ or ‘no’ to the answers about criteria seems to me reductive, also because they don’t give us the possibility to improve ourselves.” [07:55]</i>

3.3. Impact of giving or receiving feedback on learning: analysis of students’ responses to online surveys.

To answer the second research question, the students’ responses to three online surveys were analyzed in order to identify recurrent themes in relation to students’ perceived learning benefits

on the phases of GF and RF. The analysis of the data suggested that both phases of GF and RF stimulated different learning processes and played critical roles that promoted the quality of students' projects. However not all the students acknowledged this aspect. When they were asked which of the two phases they felt better contributed to their learning process, the majority of the students reported that both were instrumental in promoting their learning in this project. However, more students recognized GF as the process with a greater impact on learning. They perceived GF as an activity that stimulated them to perform self-assessment to gain a better understanding of their own reports. Furthermore, students suggested that GF also encouraged their involvement and motivation in peer assessment. Only a small number of students considered RF as the process with a greater effectiveness on their own learning. Students suggested that RF allowed them to evaluate their report from multiple points of view, which helped them to understand weaknesses and areas that need to be improved.

Table 4. Impact of Giving and Receiving Feedback on Learning in Peer Assessment.

Impact on Learning	Direct Quotes
Reciprocal and Correlative Relationship of GF and RF	<i>"I believe that both activities were fundamentally important. From reviewing the work of my colleagues, I learned what to improve in the report of my group. Then the received feedback drew my attention to things that I had not thought about yet. It was stimulating to open new discussions in the group."</i> [16:42].
GF	<i>"[...] I think [that I have learned] more from the first one [GF] because it allowed me to notice aspects that were missing or not well conceived in our report. The opportunity of reviewing other groups' work and providing feedback immediately enabled me to think about how to change our initial report... Peer feedback was only a confirmation."</i> [16:2]
RF	<i>"Having feedback from peers allows you to observe your work from a different perspective... The received feedback essentially stimulates new discussion and reflections within the group."</i> [18:4]

4. Discussion.

The finding of student engagement in multiple learning processes during the peer assessment activity supports the previous claim (Cho & MacArthur, 2011) that peer assessment involves students in multiple layers of learning. The activation of these deep learning processes can

probably help explain the learning enhancement that many researchers observed in peer assessment. The findings of the current study regarding students' perceived value associated with GF and RF are also in line with findings of Nicol et al. (2014) that highlight different learning benefits entailed in GF and RF. In the current study, students were engaged in comparison, feedback co-construction, and reflective thinking processes in the GF phase. In the RF phase, students were involved in the learning processes of feedback evaluation, reflection, self-assessment, and awareness of effective feedback. These observations suggest that both GF and RF engage students in learning but in quite different ways and activate different aspects and phases of learning. This observation also echoes with students' perceptions that both the GF and RF are influential in promoting their learning.

With this being said, it should be noted that when asked to identify the more influential learning process between GF and RF, more students chose GF than RF. This observation in our study, interestingly, could be at least partially explained by students' greater active involvement in the GF phase. When students worked with group members to provide feedback on reviewed reports, they acquired vigorous roles and actively interacted and collaborated with group members. When they received feedback (RF), however, it seemed that some students tended to assume a more passive role to simply amend their work on the basis of peers' suggestions, or to use peer feedback to confirm revisions they had already made on their reports in the GF phase. For example, one student commented: *"It was more thoughtful to give feedback to my peers. We got to modify our own report with knowledge we learned during the stage (of giving feedback). The feedback provided by peer groups identified the strengths of our initial report and reminded us of points we missed. Receiving such feedback from peers was certainly useful in enhancing the quality of our report, but most modifications or updates suggested have been already undertaken in the previous phase."* Some students perceived that they were able to improve their own work through their engagement in the phase of GF before receiving suggestions from others. This observation, to a large extent, endorses the claim that *"...students can generate productive inner feedback on their own academic work even without any external feedback input from a teacher or peers."* (Nicol, 2018, p. 82).

It should also be noted that the finding that more students choose GF over RF in terms of impact on their learning is partially in contrast with findings of the Nicol et al. (2014) study. Their study suggested that, even though students acknowledged both giving and receiving feedback as

equally beneficial in improving their initial assignment, students considered RF more important in enhancing their learning than GF. The seemingly conflicting findings may, in part, be explained by the great variation of peer assessment models. For example, the two studies varied in critical variables such as characteristics of participants, study contexts, review structure (individually or in groups), etc. The researchers of this study speculate that the variation in these elements may have influenced the perceptions of students in these two studies. Future studies should examine the roles and impact of both GF and RF in different peer assessment models.

When analyzing data, the researchers also noticed that the students' first reaction when receiving peer comments was not always positive. Some students stated that they found certain peer comments "superficial," "unclear," or "written in judgmental language," etc. Students' negative attitudes toward the poor quality of peer feedback can probably be reduced by clarifying and stressing the aims and critical features of the RF phase. As passive as "receiving feedback" may sound, this phase should be an active learning process that engages students in higher order skills such as evaluation, justification, and decision making. As Nicol asserts (2018), feedback is not an isolated product. Instead, it is the beginning of an internal reflective process that empowers students to self-evaluate and understand their own learning and construct knowledge. It is worth noticing that the poor quality of peer feedback that some student groups received actually prompted them to reflect on the characteristics of effective feedback. Some students questioned the meaning and value of providing "general" or "ambiguous" feedback without providing further explanations or detailed suggestions. Furthermore, students' negative reaction to poor-quality peer feedback suggests again the critical importance of preparing students before engaging them in peer assessment activities. For example, a training module that helps students understand the purposes and critical features of each phase of peer assessment is needed. Specifically, students need to be advised that peer feedback may come in various shapes—the good, the poor, and everything in between. Therefore, students need to evaluate the quality of peer feedback received prior to any adoptions. The evaluation and subsequent feedback adoption processes engage students in acquiring and using higher thinking skills as demonstrated in Bloom's taxonomy: analyzing, evaluating, and creating. As an earlier study (Li et al., 2012) suggested, quality of feedback does not directly contribute to students' learning. Instead, students' competence in critically evaluating and adopting received peer feedback may be closely linked to their learning. This interesting finding of the study (Li et al., 2012) precisely endorses the vital importance of students' active and cognitive engagement in the phase of

receiving feedback. Future studies that examine the influences of this feedback phase on student learning and perceptions are warranted.

5. Conclusion.

This current study aimed to explore students' learning experiences when they were engaged in peer assessment and their perceptions in regard to the benefits associated in either giving feedback (as assessor) or receiving feedback (as assessee). Content analysis of students' online written interaction in discussion forums and their responses to online surveys suggested that students were engaged in various learning processes when participating in different phases of peer assessment. With regard to their perceived impact of giving or receiving feedback on their learning, students acknowledged that both processes (giving and receiving feedback) critically contributed to their learning. Nevertheless, more students showed a preference to GF rather than RF.

The significance of the current study lies in the fact that it was one of the handful of studies that examined students' learning process when they were engaged in peer assessment. Earlier literature mainly focused on the impact of peer assessment on the quality of students' products or other learning outcomes. Even though evidence suggested that both giving and receiving feedback leads to students' enhanced performance, it is unclear what activates students' learning mechanism and how (Nicol, Thomson, & Breslin, 2014). The current study helps answer these questions by recognizing and categorizing the learning processes that occurred in a peer assessment activity. The researchers believe that these processes may actively engage students in higher levels of cognitive development, thus contributing to students' learning gains as observed in literature.

As interesting and revelatory as the findings are, the researchers would like to note that the goal of the study is not to generalize findings to the larger population. Rather, the current study aims to provide a rich, contextualized understanding of how learning takes place and what triggers the learning mechanism when students participate in peer assessment. Despite the lack of generalizability, the findings of the current study have significant implications for researchers and practitioners in education, especially those who have been integrating peer assessment to their curricula or those who are interested in doing so. First, having a greater and deeper understanding of how learning takes place during students' engagement in peer assessment can inform a

better and more thoughtful design and implementation of peer assessment activities. Second, some students reported that most learning took place when they dissented and debated with group members when co-constructing review feedback. This observation is in line with literature that suggests that debates foster critical thinking skills and promote learning (Hall, 2011). To derive the maximum learning experience from students, the researchers suggest that peer assessment activities employ open-ended assignments that challenge students' higher order thinking skills and encourage healthy debates among students. Further research is needed to explore the characteristics of the type of assignments that would engage students in deep cognitive processes in peer assessment.

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