

What's Going on Behind the Scenes? Peer Assessment as a Strategy for Enhancing Students' Commitment and Learning Motivation in Working Collaboratively

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Abstract: Peer assessment (PA) refers to any arrangement in which learners consider the amount, level, value, worth, quality or success of the learning outcomes of their peers. In simpler words, peer assessment is a form of assessment which allows the learners to provide grades/marks and/or feedback to their peers by assessing their peers' work and contribution. This paper conceptually explains about peer assessment as a strategy to increase students' commitment and motivation when working collaboratively. The first part of this paper discusses about the nature of collaborative in higher education setting. Essentially, peer assessment can be the key to uncovering what happened behind the scenes during the collaborative learning process, i.e. during group assignment or group project. In this research, an exploratory case study design was conducted among higher education instructors at a public university in Malaysia. This research seeks to explore the strategies and tools used by higher education instructors to conduct peer assessment in their teaching, with a focus on innovative approaches and digital tools used by these instructors in multidisciplinary educational contexts.

Keywords: peer assessment, alternative assessment, collaborative assessment, learning motivation

1. Introduction

Assessment is an important component in teaching and learning as it informs the instructors about their student's performance and progress during learning. One of the basic principles in conducting assessment in learning is to ensure that the assessment conducted is equitable and appropriate for the learning tasks that the students are assigned to do. The design of assessment influences the way in which the students will approach and engage in their learning task (Astin & Antonio, 2012). An assessment that focuses on repetition of facts will encourage the students to memorize, whereas assessment that evaluates class participation will prompt the students to be more active in class. Essentially, the type of assessment used can be a source of learning motivation for the students to learn and exhibit behavior or learning outcomes intended by the course instructor.

For learning tasks that requires the students to work together, such in collaborative learning setting, the appropriate assessment should be able to assess not just the outcomes of the group work, but to gauge the joint collective efforts and individual contribution towards the completion of the group work. Johnson et al (1990) discuss five basic elements in collaborative learning, involving: 1) positive interdependence among the group members; 2) considerable interaction in which the members help and encourage each other to learn; 3) individual accountability and personal responsibility for doing their share in the collective efforts; 4) engaging in social skills with team members; and 5) group self-evaluating for periodically assessing team's progress towards the common goals (as cited in Laal & Laal, 2012).

In this paper, firstly we would like to conceptually explain about peer assessment as a strategy for assessing collaborative work among students. So, what is peer assessment? **Peer assessment (PA)** refers to any arrangement in which learners consider the amount, level, value, worth, quality or success of the learning outcomes of their peers (Topping, 1998). In simpler words, peer assessment is a form of assessment which allows the learners to provide grades/marks and/or feedback to their peers by assessing their peers' work and contribution. There are wide range of PA activities and format existed, as peer assessment have been found to be conducted in many different curriculum areas and subjects (Topping, 1998, 2021). For example, Topping (2021) outlines 44 different variables that can explain the variations of peer assessment in the literature across different subject/fields. Array of terms are also used in the literature to describe a similar process, such as peer grading, peer feedback, peer evaluation, and peer review. Methods of peer assessment can also include peer nominations, peer ratings, and peer rankings (Kane & Lawler, 1978). The next part of this paper will discuss about the nature of collaborative learning in higher education practices, leading to the exploration of innovative strategies and digital tools used in support of peer assessment practices by higher education instructors.

2. The Implications of Collaborative Learning in Higher Education Practices

There are myriad of literature available reporting the impacts and implications of collaborative work in teaching and learning practices in higher education. Collaborative learning, or the experience of being able to work collaboratively, is often regarded as a valuable way of learning. It is also viewed as an important interpersonal skill, where students can learn to be a team player and develop their teamwork skills, which is a skill that is being linked to employability skills (Winterbotham et al., 2018). Notably, the merits of collaborative learning are well recognized in practice as well as in the literature. From the students' experiences and perspectives, working collaboratively through group work enables them greater value of learning via the development of a wider breath of knowledge through discussion, clarification of ideas, as well as evaluation of others' ideas (Hassanien, 2006). From faculty's standpoint, group work assessments allow them the opportunity to develop and assess various skills that are regarded as the 21st century skills, such as communication, team-building, problem-solving, collaboration, creativity and technical skills (Tumpa, Skaik, Ham, & Chaudhry, 2022).

At the same time, literature has also discussed some demerits associated with collaborative work, group work, or group assignments among students. A primary concern raised in perceptions of group work among faculty and students was often about the allocation of grades (LaBeouf et al, 2016). Group work is often perceived as more time consuming and therefore usually are assigned with higher grade allocation. However, as raised by Gould et al (2008), students typically do not favor being assessed as a group, as they feel penalized if and when some group members do not perform as expected. Ensuring participation from all members are often cited as one of the difficulties in working collaboratively (Piezon & Ferre, 2008). At the same time, from a faculty standpoint, it could also be difficult to assess the individual contributions within a group work (Quinn & Hughes, 2007). Therefore, when implementing group work/assignment, it is important to have clear guidelines not just on the assessment of the group task itself, but also transparency on how the contribution of each group member can be recognized and assessed fairly (Murray, 2003).

3. The Merits of Peer Assessment in Collaborative Learning

Based on the recollection of merits and demerits of collaborative learning presented above, there seems to be a dynamic tension between the collective nature of collaborative learning versus how they are being assessed. The nature of collaborative learning, due to the interdependent nature of their learning that happened within the team, presumable through collective efforts of the members, may requires assessment that goes beyond behind their team's finished work. Essentially, peer assessment can be the key to uncovering what happened behind the scenes during the collaborative learning process, i.e. during the conduct the group assignment or group project. For example, do the students really work together as a team? More importantly, did all the students contribute to the group project equally that merit all of them to receive the same marks for the completed project? Or should a team member who completed his or her task, be penalized for an incomplete project because another team member did not deliver his or her task accordingly?

With considerations of the above, for faculty wanting to implement collaborative work or group assignments in their courses, what is the effective way forward in practice? As a key takeaway to this inquiry, a comprehensive semi-systematic literature review was conducted by Fittipaldi (2020) to discover the best practices on managing the dynamics of group projects in higher education based on reviews of empirical research. More importantly, of a particular interest of this paper, Fittipaldi's (2020) review revealed a significant support for implementing a formative assessment for evaluating collaborative learning, without negating the importance of summative assessment (assessment of the finished task/product). Herein, the use of peer assessment, peer review, and/or peer rating, as a form of evaluation, have been shown to reduce issues of social loafing or free riding in group work. It is also perceived as the fairest and best method for assessing individual contributions within a group work. Essentially, according to Fittipaldi (2020), the data clearly indicate the value of peer assessment in successfully managing the dynamics of group projects in higher education.

4. Research Purpose and Design

The literature above has unfolded the body of scholarship that supports the use of peer assessment in higher education teaching practices. Peer assessment has been identified as a versatile approach that can be used in multidisciplinary settings (Topping, 2021). According to Fittipaldi (2020), a range of peer assessment instruments and strategies exists in the literature. With the rapid use of digital tools being integrated in teaching and learning these days, there seems to be limited research that examines the use of digital tools and applications in the context of peer assessment practices. This investigation aims to explore the strategies and tools used by higher education instructors to conduct peer assessment in their teaching, with a focus on innovative approaches and digital tools used in multidisciplinary educational contexts. Two primary research questions guided this study: 1) How do higher education instructors conduct their peer assessment in their teaching? 2) What are the digital tools used in support of the peer assessment practices among higher education instructors?

This study employs an exploratory case study design. This study is being conducted at one of the public higher education institutions in Malaysia and will be carried out in two phases (currently in phase one). In the first phase, we are conducting data collection for determining the peer assessment practices among the lecturers across different faculties at our university. In order to ensure representation of data collected from multidisciplinary practices, a maximum variation sampling strategy was used in targeting sample with at least one representative from all faculties at our university (from a total of 14 faculties). The goal of this sampling strategy is to ensure inclusivity of peer assessment practices from diverse learning environments.

Data are gathered using interviews and observation (where applicable). During the data collection, each instructor will be asked to explain how they conducted peer assessment in

the context of subjects that they taught/are teaching, as well as the digital tools that they used to support their peer assessment practices. From the interview discussion, it will be followed by observation in their classes or demonstration of the digital tools used, where applicable. If made available by the instructors, the data collection also includes documents related to peer assessment, such as evaluation form, scoring rubric, written instructions dan others.

The second phase of data collection will take place after the completion of the interviews. Two primary indicators will be used to determine sufficiency of interviews conducted, based on i) obtaining representation from all faculties of different fields in the data collection, and ii) point of data saturation. At current, this study has completed about 8 interviews from 7 faculties representation. The second phase of this research will focus on developing a framework on peer assessment practices across multidisciplinary settings. Data from the interviews, observation, and document analysis will then be triangulated and synthesized to identify emerging patterns for building the framework, which include integration of digital tools and innovative approaches used to support peer assessment, as reported by the data.

5. Preliminary Findings

This research is still currently ongoing with 8 interviews completed from 7 different faculties representing different field of studies (Faculty of Educational Studies, Faculty of Medicine and Health Sciences, Faculty of Science Computer and Information Technologies, Faculty of Biotechnology and Biomolecular, Faculty of Agriculture, Faculty of Forestry and Environment, and Faculty of Humanities, Management and Science.

Our preliminary findings so far point towards instructors practicing peer assessment as both a form of formative and summative assessment, and that it is very commonly practiced by instructors from different fields to enrich the learning process and improve the assessment practice in their teaching. Generally, these instructors identified with two ways of conducting their peer assessments:

Assessing contribution. In this PA approach, group members evaluate each other's performance in regards to their contributions to the group assignment/collaborative project. The PA is usually conducted after the completion of the project. This form of PA is typically done as part of summative assessment for the group project (please refer Figure 1)

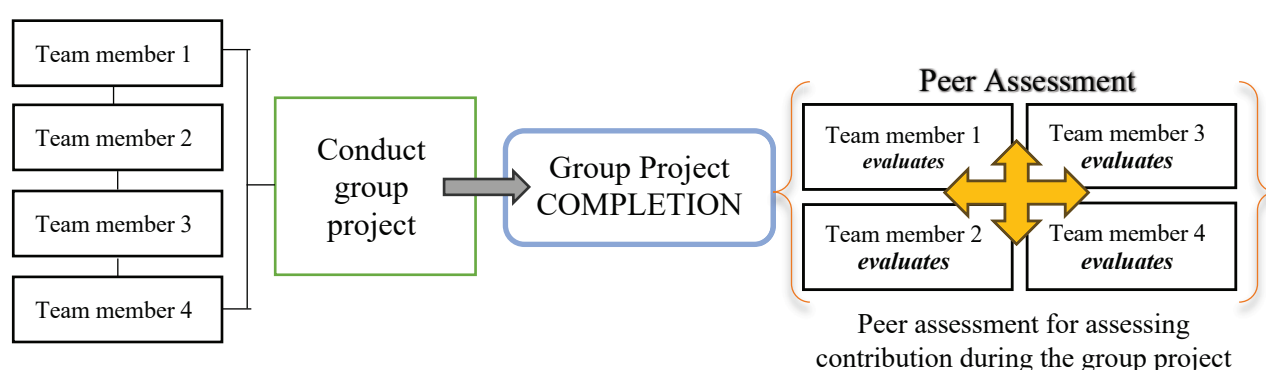


Figure 1: Peer assessment process for assessing contribution

Assessing coursework. In this PA approach, the assessment of the coursework involves the evaluation of the product of the project / presentation evaluation by their peers. Usually, this approach entails feedback that allows for improvement of the coursework. This form of PA can be done both as a formative and summative assessment (please refer Figure 2)

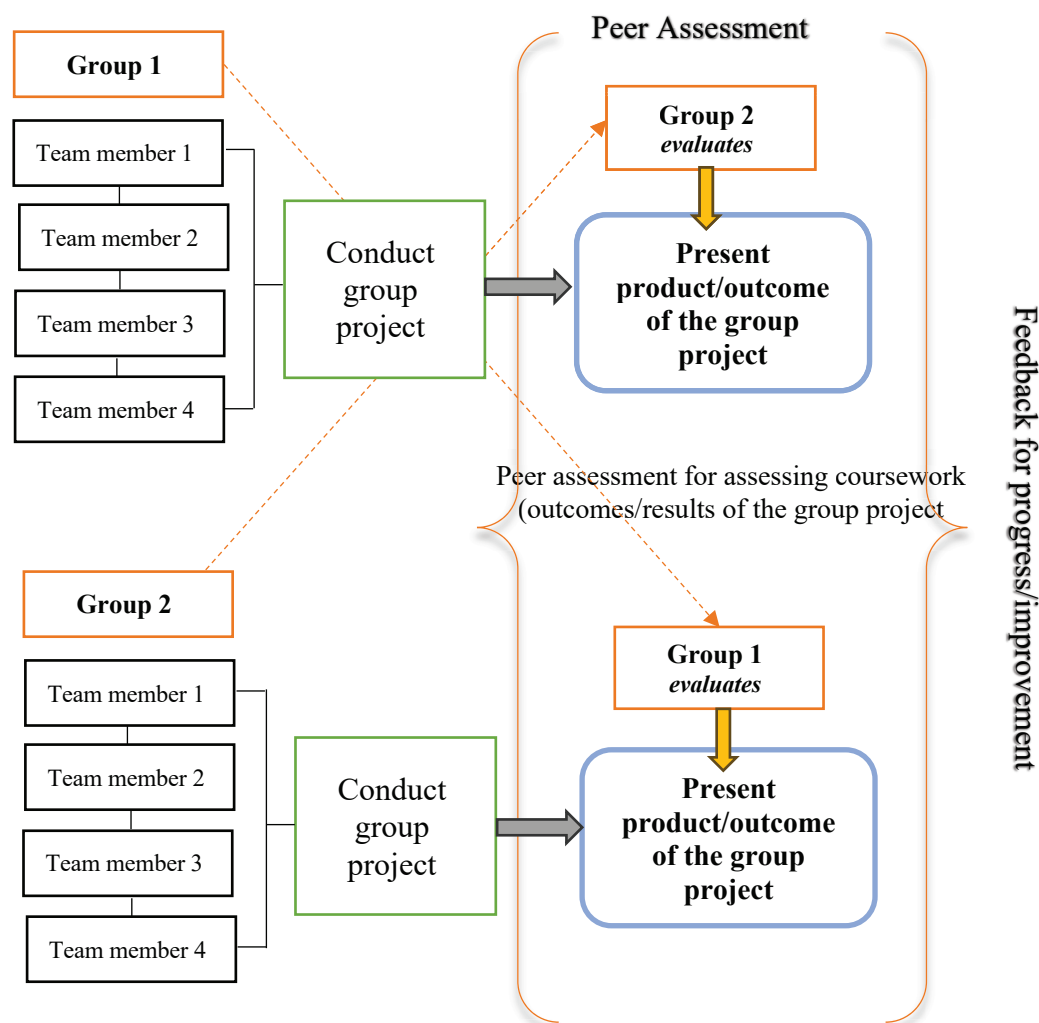


Figure 2: Peer assessment process for assessing coursework

As reported by the participants, the most common tools used to support the conduct the peer assessment was by developing rubric and preparing peer evaluation form to guide the peer assessment. While these components were the standard structure used, few instructors also incorporated some innovative approaches to conduct their peer assessment, as follow:

i. Gamification strategy in peer assessment

One instructor shared an approach where he used gamification approach to get students involvement in the peer assessment. Incorporating gamification principles into peer assessment allow the instructor to incorporate rewards and incentives to motivate students and creating a sense of achievement as they progress through levels of understanding acquired from the lecture.

The instructor begins the class with a current real-life case that is related to the class's topic, and proceed to teach the subject matter that could potentially help resolve the case presented. Next, the class with proceed with a game activity, with groupings of class members assign to various roles within the game. The peer assessment was incorporated during the gamification process where the students were asked to reward their team members' contribution using Star Reward system based on their contribution during the game, as well as feedback after the game has completed.

In the literature, another similar approach was conducted by Simionescu, Sukinova, and Kubincova (2017). Using gamified peer assessment, these instructors design the reward system through the use of badges generated from the learning management system.



Note: These are examples of the badges type used for gamified peer assessment. From, "Gamification of Peer Assessment in Learning Management System" by S. Simionescu, D. Sukinova, and Z. Kubincova, *18th International Carpathian Control Conference (ICCC)*, 2017, pp. 571 – 575, doi: 10.1109/CarpathianCC.2017.7970465

These gamification elements offer immediate feedback, fostering engagement and driving a continuous improvement cycle in the assessment process, ultimately enhancing the quality of feedback provided by peers.

ii. Role play strategy in peer assessment

Another instructor reported a peer assessment approach that was incorporated through role playing in his assessment. Role play in peer assessment involves creating scenarios that mimic real-life situations. This allows students to apply their knowledge and skills in a context similar to what they might encounter in their future careers or daily lives. In role playing, students are assigned different roles within the scenario, each with specific responsibilities, objectives, or viewpoints. These roles can be based on characters, professions, or situations relevant to the subject matter.

For this instructor, the created scenario was based on "tour packages" created by the groups of students for their assignment. The execution of the tour package was then being assessed by their peers through the viewpoints of tourists (their peers role playing as tourists). The marks used for the peer assessment took place in a form of currency, which then converted to a total of 100 marks, paid by the tourists to the operators of the tour packages. This role-play approach encourages students to assess their peers objectively based on predefined criteria (defined by the instructor using a rubric), often linked to the roles they are portraying. Engaging in role play as assessors encourages interactive learning, as students actively discuss and reflect on their own and their peers' performances. It can also make the assessment process more engaging and enjoyable for students, as they are actively involved in scenarios that mimic real-life experiences.

Integrating role play with the use of peer assessment was shown to be an effective pedagogical strategy (Ferrari, Spoletini, Bano & Zowghi). Through their quasi experimental study, these instructors found that the students made less mistakes from their 1st to 2nd interview conducted through the use of role-playing and mediated through both self-assessment and peer review during the assessment process.

Incorporating role play into peer assessment can be a powerful method for evaluating a wide range of skills and competencies. It encourages students to think critically during

the moment, communicate effectively, and apply their knowledge in practical situations as mimic by the role and situations created for their learning.

iii. Digital tools used in peer assessment

At the current stage of data collection, the reports on digital tools used by course instructors to support the peer assessment have been quite limited. From the interviews, many instructors reported preferences for manual handling of the peer assessments or supported with very basic digital tool such as Google Form to convert the evaluation from paper-based form to electronic form (see one example shared via Google Form link: <https://tinyurl.com/UPMICCE2023>). This preference for manual methods can, at times, be attributed to factors such as familiarity with established practices, concerns about technological complexities, in availability or inaccessibility of the digital tools, or a preference for a more hands-on, personalized approach to assessment. The use of other digital tools in support of peer assessment will be further explored in the remaining data collection process of this research.

7. Conclusion

This preliminary paper served as a precursor for our ongoing research on developing a peer assessment framework in multidisciplinary setting. Our team consist of members from different disciplinary, as we are currently conducting research on various instructors' practices of peer assessment in taught courses across different field of studies. From our literature search, we discovered peer assessment can be conducted in combination of 44 different variation across different subjects/fields (Topping, 2021). From our preliminary findings, we also discovered that peer assessment can be used together with other pedagogical method for a more engaging form of assessment. Our future goal for this research is to lay an empirical supported ground for designing for enhancing applications (apps) for wider use of peer assessment in multidisciplinary settings.

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