Group Work Assessment: Assessing Peer Assessment at Global College of Engineering and Technology

Raza Hasan¹, Saqib Hussain¹, Mazhar Hussain Malik², Nadeem Akhtar¹
¹Global College of Engineering and Technology, Muscat, Sultanate of Oman
²Department of Computer Science and Creative Technologies, University of West of the England Bristol
[raza.h@gcet.edu.om, s.hussain@gcet.edu.om, mazhar.malik@uwe.ac.uk, nadeem@gcet.edu.om]

Abstract
Students learning and autonomy can be improved by involving them in teaching and learning, especially in group work assessments, this can also greatly help cut down the amount of time spent by teachers on marking and providing feedback. Although peer assessment of student work can also accomplish these goals, but its application is frequently restricted to evaluating each participant’s input or participation to a cooperative effort. This paper reports the considerations and lesson learnt to successfully develop a group work assessment and marked based on the individual’s contribution to avoid conflicts. It’s worth mentioning that the peer-assessed marks are not significantly different from those allocated by faculty based on evaluative criteria, quality definitions, and a scoring strategy.

Keywords: Peer Assessment, Group Work, Assessment, Marking, Task Delivery.

1. Introduction
Group assessment is a valuable tool to facilitate the development skills for the peers (Forsell et al., 2020). It enhances the individual leaderships and teamwork skills including working among peers with harmony (Inam et al., 2021). It increases the collaborative skills and analytical thinking (Hunaidah et al., 2018). It also creates the sense of responsibility among peers, eventually equips students with time management and organizing skills (Wilson et al., 2021). Higher Educational Institutions (HEIs) implement group assessment to equip students with the skills required in the real world where they should have all the said qualities and streamlining the assessments and grading tasks. On the other hand, group assessment is also used to reduce the workload of faculty as the number of assessments to be marked reduce as compared to individual assessment (Almond, 2009; Davies, 2009). This brings the problem of assessing individual contribution because group work is considered a product which consists of sub processes and individual contribution to complete subprocesses results in completion of a final product (Thomas, 2012). As an academician this may lead to inequality in assessing individual contribution, which in turn might not be acceptable by students, and can be unfair to the group members (Martino & Polinori, 2010). As group assessment can reduce the workload of a faculty but designing an assessment carefully and thoughtfully that caters all the problems in such a way that students is marked as per the contribution and assessment learning outcomes achieved by individuals.

2. Background
This study was conducted at The Global College of Engineering and Technology, GCET, which is a private Higher Education Institution located in Muscat, Sultanate of Oman. It was founded in 2014 and commenced operation with the first intake in the autumn of that year. The College is regulated by the Ministry of Higher Education (MoHE) and is affiliated with the University of the West of England (UWE), Bristol, UK on a franchise basis. This means that the awards of College’s academic programmes are issued by UWE (GCET, 2022). For the study, a Level 2 module was selected from the Computing and Information Technology (CIT) department. This module consists of 2 practical group work components which makes it easier to implement group work strategy and to reflect on the lessons learned after the module delivery. The aim of this study is to successfully implement peer assessment based on individual contribution and lesson learned from the peer assessment.

3. Issues and Concerns
3.1 Employability
Due to immense pressure of studies and final grades students tends to develop the habit of working on their own and strive towards their own personal achievements. Students find it difficult to negotiate working in a team setting as their perception of learning is to achieve the passing marks only. It is difficult to convince students to actively participate in group assessments, which should help them effectively prepare for the employment. Secondly, there is a gap between the real workspace...
environment and how the HEIs prepare and evaluate the group work.

3.2 Inequity of contribution
Students concern towards group assessment is the possibility of being unfairly marked on individual contribution. Students fear that grades and performance do not properly reflect their contribution in group-based assessments. As in most cases some students contribute more than the other group members, so marking schemes should be designed in a way that this issue can be coped with to ensure that marks can be awarded according to the contribution made by each group member.

3.3 Workload
Students normally take multiple modules in each semester that have multiple assessment across different modules. When designing a group assessment these should be considered and assessments should be scheduled, with proper coordination with other module instructors, in such a way that students must not be overburdened.

4. Designing Group Work
While designing a group work assessment, the basic principles that apply to individual student work should be applied to the group work as well. Additional aspects should be considered depending on the assessment objectives, both product and process-based skills must be assessed and individual performance towards the assessment must be translated into individual grades to avoid inequality of marks.

4.1 Assess process, not just product
Depending upon the nature of assessment, instructor has to decide the importance of product or process or both for an assessment. Weights of these components rely on the Module Objectives (MOs) and these should also reflect in the final grades of students. Rubric can be used as an evaluation tool providing students with evaluative criteria, quality definitions, and a scoring strategy [2]. The rubric should be communicated with students along with the assessment, so they have a clear picture of the assessment grading.

4.2 Individual Contribution Assessment
It is very important to assess individual contribution and understanding of the assessment. This can be achieved through reflective writing by students on their learning and understanding of the work they contributed. Students should be able to evaluate their own teamwork skills and their contribution in the group assessment using reflection and other self-assessment techniques.

4.3 Peer Evaluation
In order to gather important information about the group dynamics and contributions of each individual in the group. Peer evaluation can be used as tool to gather insights on group member’s contribution towards the group. This is not an effective strategy as students may feel social pressure to cover for one another. However, when combined with the above factors promotes individual accountability and self-consciousness to provide information as accurate as possible.

5. Methodology and Implementation
For the Level 2 module there were 120 students enrolled in the module. As per the assessment criteria each group should consist of 4 group members making a total of 30 groups. Marking scheme, peer assessment form, task delivery form and contribution rubric was shared along with the assessment with the students and discussed in the sessions for understanding. Verbal feedback will be delivered to the student following the demonstrations of the group assessment.

Figure 1: shows the marking scheme designed in such a way to evaluate the overall group work. For processes we used the task delivery form which each student has to fill in, so the instructor gets the idea how they approach the assessment.

![Figure 1: Marking Scheme](image1)

![Figure 11: Task Delivery Form](image2)

Figure 3. shows the peer assessment form which from the students’ perspective rates individual contribution of their peers in the assessment. This reduces the load of the faculty for marking if it is not biased, to avoid this each student has to submit the peer assessment form separately and confidentially. This rating is confidential and cannot be shared with students to avoid any conflicts when the grades are revealed. Figure 4. shows the rubric used to mark the individual performance of the students after the questioning session during the demonstration. Rubric helps to normalize the final marks which in turn helps to distinguish each member in the group based on the weightage of their work done.

![Figure 3: Peer Assessment Form](image3)

![Figure 4: Rubric](image4)
Finding a best model to fit the context is difficult as it depends on the nature of the assessment. Imposing one model over the other can impede learning and prevent effective cooperation among the peers. Some may prefer to be guided by a clear model whereas some might prefer informal discussion and meetups and produce the product based on their intuitions.

Well organized and supported group work may build confidence in students and can lead to better self-building for the marketplace. Providing explicit guidelines can help improve the coordination among the group members. Letting students choose their own group rather than staff assigning them.

Establishing the roles and responsibility of group members is useful for guiding their own discussions about roles instead of imposing on them. Scheduling group meetings as students find it difficult the time and workload pressure and, in many cases, resulting anxiety, of organizing oneself to attend and contribute to group meetings is keenly felt by many students in HEIs. Sometime after lecture sessions should be provided by the faculty to discuss the issues and support how to manage a group can help in achieving better grades.

Defining group processes and procedures well in advance and providing details to students alongside of the weightage of each criterion to make it clear for students about the marking. Below discusses the lesson learnt from the assessment.

### Table 1 Instructor Assessment of Group Work (McGraw, 2022)

<table>
<thead>
<tr>
<th>Assessment Option</th>
<th>Advantages</th>
<th>Disadvantages</th>
</tr>
</thead>
</table>
| 1 group submission and each student receives same marks irrespective of their contribution. | - Straight forward mechanism.  
- Decreases the likelihood plagiarism.  
- Works together as harmony and no one to blame for the grades. | - Disadvantage for stronger students or vice versa.  
- Individual contribution is not reflected properly in the grades. |
| Individual submission and receives average marks. | - Provides focus on individual as well as group work. | - Unfair to students.  
- Disadvantage for stronger students or vice versa. |
| Each student is marked individually based on the allocated task. | - Possibly best way to ensure individual participation.  
- Provides motivation and rewards for performance. | - Doesn’t encourage collaboration.  
- Task dependencies might slow the progress of other students.  
- Task division based on the complexity. |
Each student is marked based on the reflective writing on the tasks they perform in a group.

- Fair in most cases.
- Ensuring individual effort.
- Students should be clear on how to write the reflective part as can differ from one another hence can effect on the grades.
- Likelihood of plagiarized work.

End semester examination targeting specific questions based on the group project.

- Motivation to learn from the assessment but from peers too.
- Diminish the group work importance.
- More work required to formulate the examination questions.
- Not effective as report can answer the question for those who participated less in the group.

Combination of Group Average and Individual Mark.

- Fairer than shared group marks.
- Procedure and negotiations adjustments required in case of dis agreement.

Table 2 Student Assessment of Group Work (McGraw, 2022)

<table>
<thead>
<tr>
<th>Assessment Option</th>
<th>Advantages</th>
<th>Disadvantages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marks distribution from the pool of marks.</td>
<td>Easier to implement.</td>
<td>Can lead to conflict.</td>
</tr>
<tr>
<td></td>
<td>More student contribution.</td>
<td>Foster competition.</td>
</tr>
<tr>
<td></td>
<td>Rewarding for outstanding performance.</td>
<td>Open to subjective evaluation by friends.</td>
</tr>
<tr>
<td></td>
<td>Fairer than shared group marks.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Motivate students to contribute more.</td>
<td></td>
</tr>
<tr>
<td>Students allocate individual weightings</td>
<td>As Above.</td>
<td>As Above.</td>
</tr>
<tr>
<td>Peer evaluation</td>
<td>Helps to clarify the criteria for assessment.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Encourages responsibility and involvement.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Increase feedback to students.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Provides experience to careers.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Skill development in independent judgment.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Make students learn how to evaluate each other.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Moderation for instructor can be time consuming.</td>
<td></td>
</tr>
</tbody>
</table>

Peer assessment’s usage and exploration have expanded along with the prevalence of group work at HEIs. Peer evaluation helps to solve issues with group dynamics and Formative peer evaluation enhances both individual and collective performance. Peer evaluation exercises hone vital professional abilities and are in a position to offer insightful criticism. Peer evaluation strengthens the validity of the grading system. Designing the assessment is a challenge for instructors and comes with challenges such as student acceptance, student inexperience, setup and monitoring time and moving beyond surface level engagement. Apart from these challenges there are few strategies that can help instructor to formulate better assessment’s such as set expectations and clarify goals, provide training for students, model assessment and feedback, emphasize on written feedback, encourage elaborated feedback, allow opportunities to apply feedback, allow adequate time and spacing for the process and align peer assessment to key learning goals.

Acknowledgements

Authors acknowledge support from peers in completing the research.

References


7. Conclusion