*Advances in Social Science, Education and Humanities Research, volume 582*
**Proceedings of the 2021 6th International Conference on Modern Management and Education Technology (MMET 2021)**

# Introducing Peer Assessment to Relieve Free Riding in Group Study

Bei Ye[1*]

[1]*Hubei SME Research Center, Wuhan University of Science and Technology*
[*]*Corresponding author. Email: yeb323@sina.com*

**ABSTRACT**
Traditional collective assessment has incurred some free riding in group work and reduced the benefits of cooperative learning. It is helpful to introduce peer assessment as a supplement so that teachers have better understanding of individual work and provide positive incentive for students. A five-dimension assessment system is thus recommended to be adopted in the middle of and at the end of a course or a group task.

***Keywords:*** *Free riding, Group study, Peer assessment.*

## 1. INTRODUCTION

In recent years, group study has been widely used in university teaching. Group study is conducive to stimulating interest through brainstorming, realizing collective wisdom by learning from each other, and cultivating students' awareness of team-ship. However, in some groups, there is a phenomenon of free riding by some members. This may seriously affect the benefits of group work such as opinion pooling, unity and cooperation, and harm the impartiality of educational evaluation. It is of great significance to improve present assessment method by introducing peer assessment.

## 2. FREE RIDING IN GROUP STUDY

The term "free riding" was originally used by American economist Mancur Olson in *The Logic of Collective Action: Public Goods and the Theory of Group,* meaning to receive a benefit without contributing towards the cost of its production. It was later used in a much wider social context.

In group study, teachers' evaluation is often based on team results, such as group reports, presentation and so on. Due to the limited time and energy, it is difficult for teachers to go deep into the process of group learning. Instead, the flow of work goes from “task assignment” to “collecting group outcome”, and then to “collective evaluation”. Apparently this gives some members an opportunity of free riding. As performance is evaluated on group-level, some members would rather not work hard, but simply wait for others to work. Other members have to complete part of the free riders’ work for fear of poor grades. In the long run, it will cause discord among team members, affect the effect of group activities, make it difficult to achieve the win-win team learning goals, and harm the fairness and justice of teaching assessment.

## 3. CAUSES OF FREE RIDING IN GROUP STUDY

To get to know the causes of free riding in group study, random interviews were carried out with 60 undergraduate students in our university in 2020. The interviews were anonymous with senior students as the interviewers, so that the interviewees felt at ease and could give honest responses. According to the feedback, about 75% of the interviewees encountered free riding in group study; 35% admitted to their own free riding in group activities (Figure 1).

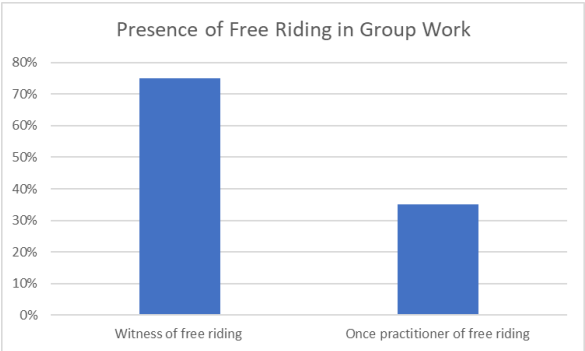


Figure 1 Presence of Free Riding in Group Work

As for why there is free riding, about 65% of the interviewed students believed that the collective assessment mode of group work makes individual efforts less recognized (65%); other potential causes include unfamiliarity with group members(20%), lack of communication (53%), group leader dictatorship (32%), members' lack of capability (28%), vague personal responsibility (30%) and so on (Figure 2).

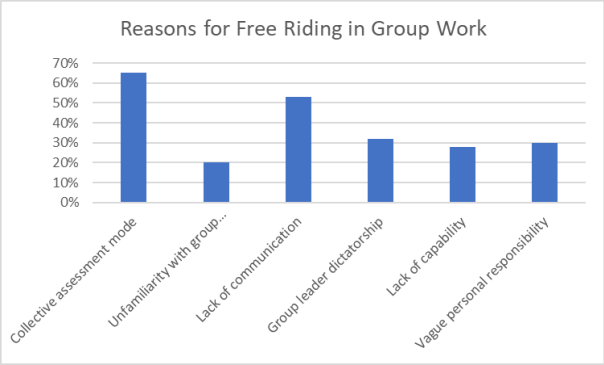


Figure 2 Reasons for Free Riding in Group Work

The interview revealed several possible causes of free riding in group study. Among them the most prominent one is related to the assessment mechanism.

Generally speaking, the size of university classes ranges from 40 to 200 students. Given a typical group consisting of 6 members or so, there will be 7-34 groups in one class. As mentioned above, the limitation of teaching hours as well as instructors' energy makes the evaluation of group activities mainly based on collective results. Instructors simply rate group work and use it as the grade of each member of the group. This collective evaluation mechanism neglects the working process and individual contributions, providing a breeding ground for free riding. If some members intentionally or unintentionally free ride, other members have to undertake more responsibilities, or even all of the task. This situation cannot be detected by the instructor under the simple collective evaluation. By and by it will enhance the motivation of free riding.

Therefore, to relieve the phenomenon of free riding, it is necessary to introduce evaluation based on the process, and supplement team evaluation with individual ones.

## 4. RECOMMENDED PEER ASSESSMENT TO RELIEVE FREE RIDING

How to unveil team work process and help identify individuals' contribution? A feasible measure is to introduce peer assessment.

Group members understand what one does and contributes much better than teachers. Familiarity with peers also improves the accuracy of evaluation [1]. The mutual assessment can assist teachers to make a fairer judgment of each member on the basis of group results, thus provides an individual accountability mechanism to effectively curb free riding.

There has been much previous study as for measurement and dimensions of team member effectiveness (e.g. Taggar and Brown 2001; Brutus and Donia 2010)[2][3]. A dominant five-dimension framework was proposed by Loughry, Ohland, and Moore (2007)[4]. Based on this, Ohland et al.(2012) designed and developed a group assessment system CATME[5].

O'Neill et al. (2018) also adopted the above framework but made some minor naming revisions. They improved and launched an Internet-based ITP assessment system[6]. In their system, the five assessment dimensions include:

(1) Commitment: personal contribution to group work;

(2) Capability: personal knowledge, skills, and abilities;

(3) Communication: communication and interaction with the group members;

(4) Focus: sticking to group objectives and tasks;

(5) Standard: pursuing high standards.

The key steps of peer assessment include:

### *4.1. Individual assessment*

A Likert scale is used for group members to anonymously evaluate themselves and their peers in the group from above-mentioned five dimensions.

The reason why each person evaluates himself first is that social comparison helps enhance the validity and reliability of the questionnaire. O'Neill et al. suggested that each dimension provide multiple behavioral representations that are easy-understanding. The number of behavioral representations needs to be refined to reduce survey fatigue and cognitive burden.

For example, students may evaluate the dimension "communication" according to the following behavioral representations namely: (1) communicate and share information clearly; (2) timely exchange information; (3) ask for team members' feedback and adopt suggestions timely; (4) seek team input before taking action. Each dimension will have one comprehensive score ranging from 1 to 5 corresponding to: to no extent, to a little extent, to a moderate extent, to a considerable extent, and to a great extent respectively[6].

After scoring the five dimensions, students are encouraged to provide extra feedback in words. Teachers should encourage each student to be specific,

constructive and polite while doing this.

The above assessments could all be completed with computer systems.

### 4.2. Structured assessment report

When every student has assessed himself and his peers, an automatic statistical evaluation report will be produced with the computer system. Always please bear in mind that peer assessment is not only to better assist teachers' evaluation, but also to guide each student to understand their own achievements and shortcomings through the feedback of their peers, and to provide an improvement direction for subsequent group activities.

A typical peer evaluation report proposed by O'Neill et al. includes the following parts:

(1) Report overview: purpose of report, interpretation of evaluation dimension, how to use it, and so on.

(2) Evaluation summary: five-dimensional spider map contrasting peer evaluation and self-evaluation, the score and meaning of the five dimensions (Figure 3).

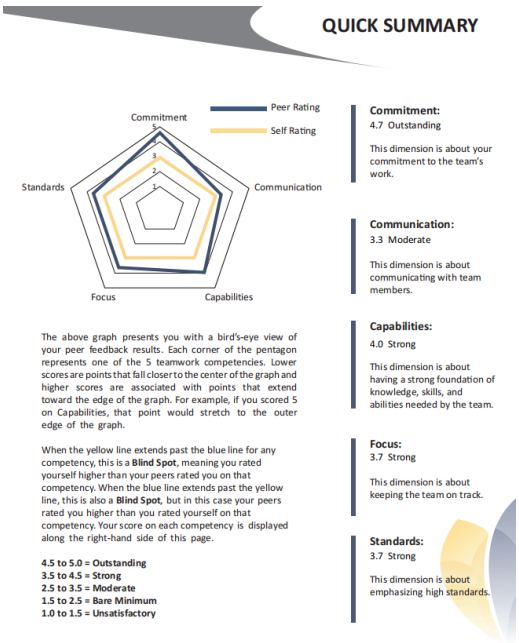


Figure 3 A Student's Evaluation Quick Summary Using ITP Assessment System

(3) Evaluation details: a refinement of the previous part. Each page shows one dimension assessment results, including scores, behavioral representations, overall group views and suggestions and so no. Based on this, the assessed student is encouraged to write down a specific and practical improvement target so that he may do better in the future(Figure 4).

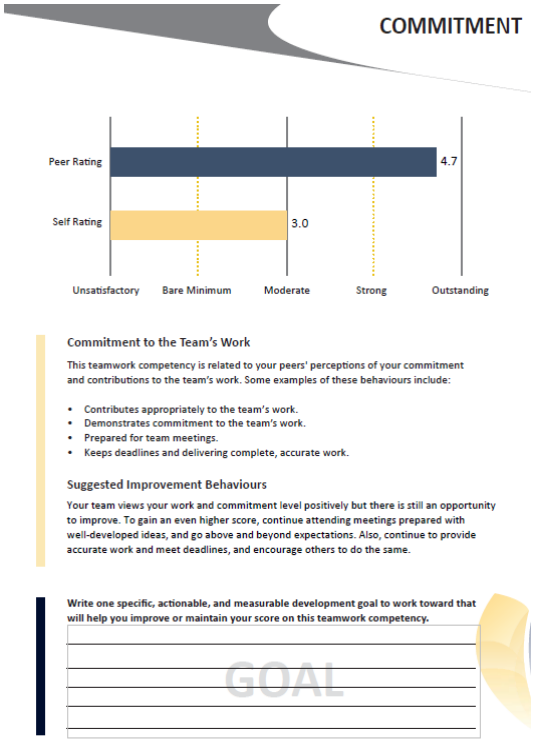


Figure 4 A Student's Dimensional Evaluation Page Using ITP Assessment System

(4) Peers' remarks: subjective text remarks by each team member.

### 4.3. Team discussion

The purpose of peer evaluation is not only to assist teacher's evaluation, but also to provide incentives to improve everyone's performance and prevent free riding. Therefore, at least two rounds of peer assessment are needed. The first round should be conducted in the middle of the course or group task.

When finishing the first round, it is of great importance to carry out a group discussion. Students should bring their own assessment report to the team. Each member could report his major advantage recognized by others, and propose a specific goal during the remaining time so as to boost his own as well as the group's performance. Then the team may discuss and determine the main strengths and shortcomings of the group, and decide upon specific measures to take. Finally, a team resolution will be formed and attached to the individual evaluation report for each member as a memo. This team discussion is of great significance for it may direct the group to a better outcome when the course or task ends.

At the end of the course, there should be another round of peer assessment. In this way, instructors may refer to group performance and peer assessment results to give a fairer rating for every student. When each

student knows his individual effort could be observed via peer assessment, he will definitely devote more to his responsibility.

## 5. CONCLUSION

Team work has been more and more valued in modern society and that is why group study is growing in post-secondary education. However, collective assessment based on group work may entail the problem of free riding and reduce the benefits of cooperative learning. In this regard, peer assessment provides a practical way to help teachers observe individuals' work and contribution, and make fairer evaluation. In the meantime, it provides positive incentives for students who work hard and effectively.

By introducing peer assessment, group study may be more fruitful in the future.

## ACKNOWLEDGMENTS

This work was supported by Hubei SME Research Center （HBSME2019B05).

## REFERENCES

[1] S.V.Paunonen, and T.A. O'Neil, Self Reports, Peer-Ratings, and Construct Validity, in European Journal of Personality, 2010, 24 (3). pp.189–206.

[2] S.Taggar, and T.C. Brown, Problem-Solving Team Behaviors: Development and Validation of Bos and a Hierarchical Factor Structure, in Small Group Research, 2001,32 (6).pp.698–726.

[3] S.Brutus, and M.B.L. Donia, Improving the Effectiveness of Students in Groups with a Centralized Peer Evaluation System, in Academy of Management Learning & Education, 2010,9 (4).pp.652–62.

[4] M.L. Loughry, M.W. Ohland, and D.D. Moore, Development of a Theory-Based Assessment of Team Member Effectiveness, in Educational and Psychosocial Measurement, 2007, 67(3), pp.505–24.

[5] M.W. Ohland, M.L. Loughry, and D.J. Woehr et al, the Comprehensive Assessment of Team Member Effectiveness: Development of a Behaviorally Anchored Rating Scale for Self- and Peer Evaluation, in Academy of Management Learning & Education, 2012, 11 (4), pp.609–30.

[6] T. O'Neill, L. Nicole, and J. Smith et al., Introducing a Scalable Peer Feedback System for Learning Teams, in Assessment & Evaluation in Higher Education, 2018, DOI:https://doi.org/10.1080/02602938.2018.1526256