The Influence of Grouping Methods on the Free-Riding Behavior in Group Work

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Abstract. Group work is receiving much attention worldwide along with an increasing amount of free-riding in group work. Though many studies focus on the effect of group size on free-riding, a gap in reviews of grouping as an influencing factor still needs to be addressed. This study reviews articles in the fields of group work and summarizes the impact of grouping methods on free-riding behavior, and gives general suggestions.

Keywords: Group work · Free-riding · Grouping Method · Homogenous group · Heterogeneous group

1 Introduction

Educators often use small group assignments because they have significant educational advantages. For example, group assignments not only provide group members with more diverse perspectives on thinking about problems but also develop participants' communication and coordination skills, group work can also help students develop new relationships and integrate more quickly into campus life [1, 2]. In addition, group work increases students' sense of responsibility and ensures consistency in front of collective and individual goals [3]. However, there are many challenges lurking in group work, such as unequal participation of group members [4]. In addition, certain challenges of the learning environment are highlighted, such as the time allocated to group work, the way group work is interpreted, the number of group assignments included, and more generally the module load [5]. Moreover, group conflict is the fundamental difficulty encountered in group work. Students must develop their collaborative skills. There are times when it does not come naturally [6]. In group conflicts, free-riding behavior is one of the most highlighted representations. Free-riding, also known as social loafing, refers to the pattern of behavior where someone participating in a cooperative project fails to, in the perspective of other group members, provide their fair share [7]. Teams are supposed to make a conscious effort to create an atmosphere that encourages and appreciates the value and contributions of all members [8]. This article delves into the phenomena of free-riding, grouping, and the relationship between the two concepts.

2 Grouping Methods

The heterogeneity of students in universities hints at the importance of cooperative learning as an important pedagogical approach with multiple advantages but also facing problems. Scholars have examined many approaches to grouping methods, the most discussed of which is heterogeneous grouping.

The majority of universities and colleges have a tendency to permit students with similar academic aptitude and achievement [9]. Despite the homogeneity in the overall intellectual talent and academic performance caused by screening procedures, universities prioritize students' diversities regarding various expertise skills in different courses, individual characteristics, prior experiences/knowledge, and learning styles/strategies [9]. These diversities lead collaborative learning to be more meaningful. Group study in cooperative learning is a powerful technique that has been shown to improve student performance in a variety of studies gives a comprehensive explanation of these advantages: first, group work allows learners to independently and confidently broaden their perspectives and to innovate and develop critical thinking; second, learners are able to work independently on assigned tasks, understand complex concepts related to the task, and design and frame their own work to quickly and comprehensively acquire knowledge; third, the spirit of teamwork; fourth, group work creates a sense of competition and thus improves the overall academic performance of the students; Fifth, different learners help each other in the group, which helps balance talented and slow learners [10, 11]. However, it is believed that group learning also faces many problems: for example, some students do not like the group setting, and awkwardness and discomfort may prevent them from benefiting from group work; moreover, group work gives students more control, which may lead to a shift in instructional focus; also, problems of division may arise if there are different perspectives within the group; also, assembling group members is a challenge, especially for distance education; and, like all group activities, some group members may not contribute, as evidenced by behaviors such as free-riding or social-loafing [12].

Groupwork is an essential form in the current teaching and learning processes. Students often work together and spend a significant portion of their time in the classroom on one or another cooperative learning experience. However, the way students are grouped may significantly affect how they learn and how well they learn. Thus, it is important for instructors to guarantee the successful performance of group work by setting group divisions appropriately. For the grouping methods, heterogeneous grouping is most often mentioned along with cooperative learning, and "heterogeneous grouping of students in cooperative learning is so common that it is often included in definitions of cooperative learning" [13]. Oppositely, it's debatable whether or not to group students for instruction depending on their prior performance. Low-achieving students have more varied outcomes, whereas high-achieving pupils often achieve more when grouped uniformly [14]. In a science laboratory environment, self-selected undergraduate cooperative learning groups performed worse than teacher-selected groups in both homogeneous and heterogeneous groupings [15]. High achievers also performed better in homogenous groups; average and low achievers showed little difference in performance between heterogeneous and homogeneous groups; high achievers typically had unfavorable attitudes about group work. That homogeneous grouping led to higher achievement than heterogeneous

grouping through the use of a control group experiment [9]. He reasoned that homogeneous grouping allows for the teaching of significant non-academic goals that encourage cooperative learning, such as improving intergroup relations while grouping students in a way that is most likely to result in the highest levels of student achievement.

3 Free-Riding

When working in groups, there is a tendency for a less individual effort to be put in than when working alone. This is known as social loitering [16]. And free-riding happens when people benefit from the group's success without contributing any of their own work [17]. Both social loafing and free-riding, according to Kidwell et al., describe individuals who do not exert themselves to their fullest potential for a variety of reasons [18]. The many advantages of collaborative projects may not be achieved if hitchhiking compromises teamwork. Free-riding may limit important learning opportunities for students, particularly if non-free-riders decide to purposefully put in less effort [19]. Free-riding may occur for several reasons. Differences in work styles are an illustration of this. A "lone wolf" student is one who prefers to work alone and complete priorities and goals on their own. The downsides of teamwork and the detrimental impacts on team members outweigh any potential benefits that the "lone wolf" way of functioning may have for an individual: Students who prefer to work independently do not realize the advantages of team learning for themselves; in addition, other team members may perceive this type of worker as working clumsily or without adequate information [20]. Additionally, different personalities may have an impact on free-riding production. For instance, free-riding may be unintentional and result in feeling unqualified or incapable of doing the task at hand [21]. This is particularly true for those who worry about their communication abilities, such as some particularlly shy students. These students are less inclined to interact more with their group members and might have to deal with both project requirements and communication issues. Thus, they are unsure about how to complete a project or assignment [22]. One possibility for addressing free-riding is the use of smaller groups, as its incidence increases with group size [23]. However, the use of small groups does not sufficiently reduce free-riding. So further action is needed against free-riding, such as peer evaluation [1].

4 The Impact of Grouping Methods on Free-Riding

Grouping is the process of selecting a group or team members and assigning them to specific groups in which teachers, students, and other stakeholders may be involved and use a variety of methods to help with the selection, laying the foundation for effective future group work [24]. If the foundation is poor, it will be difficult for students to develop into a cohesive and effective unit and will lead to free-riding; if the process is well planned and executed, the conditions are set for the development of high-performing teams [24].

If there is an imbalance in the ratio of good to bad students in the team, and the team's top and bottom students do not have the same expectations for the final results, it is easy to lead to free-riding. The dominance of the team tends to favor the top students,

and the top students carry a heavier burden. The team's dominance tends to favor the top student, who carries the heavier burden [25]. The team's task distribution may become: the poor students are responsible for the easier tasks, and the top students are responsible for the heavier tasks. The team's task distribution may come to a situation where the poor students are responsible for the easier tasks, the top students are responsible for the more difficult tasks, and the top students will have to spend time tutoring the bottom students because the bottom students will have many problems in completing the tasks [25]. The top students have to spend time tutoring the bottom students, which leads to the top students having heavy tasks and high mental input. Coupled with poor evaluation mechanisms, if the top students who give more receive the same score as those who give less, their academic self-efficacy will be undermined and they will tend to contribute less in subsequent teamwork. Poorer students who give less will be more inclined to avoid tasks and enjoy the fruits of others [25].

Thus, for an effective grouping method, homogeneity within the group is the foundation, which ensures consistency in the overall level of students within the group and creates the basic conditions for fair competition. At the same time, the members within the group can have heterogeneity in terms of ability disposition, and so on, to further develop cooperation [25]. There is another solution: team roles can be rotated across tasks when a given team maintains the same members over an extended period of time [8]. This provides an opportunity for all team members to experience the unique requirements and contributions of each role. Role rotation within the team can alleviate the possibility of social loafing due to a lack of confidence and enjoying the fruits of others, as each member has a clear contribution to make.

5   Conclusion

Group work is now an important teaching method, not only because of its numerous benefits, also because of the specific heterogeneity implied by students in college. However, because it is organized in small groups, it is difficult to escape the problem of the varying contributions of group members, which leads to free-riding behavior. Scholars have found that similar to the use of smaller groups, the use of methods such as peer review reduces free-riding. Yet, research on the effect of the grouping method on free-riding is still flawed. This paper analyzes the possibility that an unbalanced grouping method increases free-riding and proposes two solutions based on previous research: ensuring homogeneity in the overall level of the group and rotating roles within the group. However, this article only makes suggestions in general terms; specific practices on how to ensure homogeneity in the overall level of the group and how to organize rotating roles within the group are what further research could focus on.

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