

The Impact of Peer Assessment on Students' Motivation for Cooperative Learning

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Abstract:

Nowadays, peer assessment is becoming a more important criterion in modern education for evaluating students' team-based learning activities. The purpose of this research is to investigate how peer assessment affects students' motivation to learn in collaborative learning settings. The results show that the impact of peer assessment is strongly influenced by the context and design of its implementation. On the one hand, by meeting students' core psychological needs of autonomy, competence, and relatedness, well-designed peer assessments can effectively increase students' intrinsic motivation. However, because of unjust grading, unclear criteria, and poor feedback, poorly planned peer assessments can lead students to anxiety and frustration, which lowers their motivation. Therefore, important variables like transparent standards, anonymous procedures, and methodical training are potentially necessary for the successful application of peer assessment. This study provides theoretical perspective to analyse the impact of peer assessment on students' motivation and practical implications for educators to optimize the design of peer assessment to stimulate students' motivation.

Keywords: peer assessment; students; motivation.

1. Introduction

21st-century skills highlight the importance of collaborative competence, leading to a growing presence of group cooperative activities in modern educational approaches. Students often encounter numerous challenges during the process of working in teams [1]. A key challenge that emerges is how to effectively and fairly assess the contribution of each member in the student group in the absence of supervision by teachers. In the same time, it is needed to continuously

stimulate students' enthusiasm for participation and their intrinsic commitment, rather than falling into the trap of "free-riding" and other formalistic forms of cooperation. Peer assessment is supported as a solution strategy that can enhance students' learning motivation [2]. It has been widely accepted and adopted in educational fields such as middle schools and universities [3,4].

Peer assessment is defined as "students judge and make decisions about the work of their peers against

particular criteria” [5]. Many studies have found that peer assessment plays a positive role in students’ learning, which can enhance students’ learning motivation [6,7]. However, studies about the effect of peer assessment on students are not always similar, meaning that its impact on students’ learning motivation, is particularly complex and controversial. A survey found the attitudes of university students towards peer assessment that a core problem among students was their confusion about this strategy, which made it difficult to effectively promote their learning [8]. Another research also mentioned that the effectiveness of peer assessment is affected by the structure of the program and the social relationship within the group, ultimately influencing students’ motivation to engage in collaborative learning from a fairness perspective [9]. Additionally, a recent study indicates that peer assessment without an anonymity mechanism will cause students to experience intense discomfort [10]. Furthermore, there is a recent research suggesting that the effectiveness of this method in terms of anonymity and implementation environment is controversial [11]. The research cited above reveals the complexity of the issue: Does peer assessment in groups enhance or undermine students’ learning motivation? More importantly, what are the underlying psychological and social interaction mechanisms behind this influence? What key factors are regulating this process? Answering these questions is crucial for the scientific and effective design and implementation of peer assessment.

Based on the above background and issues, this paper aims to conduct a systematic literature review on the relationship between peer assessment and students’ learning motivation in collaborative learning contexts. This article will focus on the student group and review key theoretical frameworks and empirical research findings. The following sections will first introduce the core theoretical frameworks that underpin this topic, then synthesize empirical findings from existing literature, and finally conclude with implications and suggestions for future research.

2. Theoretical Framework

Self-Determination Theory (SDT) provides a theoretical perspective for understanding the correlation between peer assessment and the motivation of students. SDT classifies motivation into two main categories: intrinsic motivation and extrinsic motivation and then advocates three fundamental needs associated with it: autonomy, competence, and relatedness [12]. The theory distinguishes between them based on the goal of the behavior: intrinsic motivation emphasizes interest in the activity itself, while extrinsic motivation is the pursuit of a certain outcome separate from the person. The three basic needs are defined as follows: individuals need to perceive that their

behaviors are driven by their own will rather than external control; experience that they have the ability to effectively cope with challenges; and the desire to establish emotional connections with others and obtain social support. During the learning process, students may exhibit not only intrinsic motivation stemming from interest and curiosity in the subject matter, but also extrinsic motivation driven by societal expectations and practical life requirements. Peer assessment may exert an impact on three fundamental psychological needs, thereby potentially influencing students’ learning motivation. For instance, incorporating peer assessment into the evaluation criteria gives students a certain degree of self-determination over their academic performance, which may enhance their intrinsic motivation and strengthen their initiative in learning. Apart from this, due to lack of relevant experiences, completing learning evaluations from the perspective of reviewing others is a challenge for students, and accomplishing this task may bring students a sense of competence. It is also possible that peer assessment conducted in groups brings about interpersonal interaction. Receiving recognition or suggestions from partners can enhance students’ sense of belonging during the learning process, thereby increasing their willingness to learn. The above examples merely explore the possible impact of peer assessment on students’ motivation for learning. The following will conduct an analysis based on empirical research.

3. Analysis

3.1 The Positive Impacts of Peer Assessment on Motivation

The majority of research results show that peer assessment has a positive effect on students’ learning motivation [13,14,15]. This positive influence appears to operate through two primary mechanisms. First, peer assessment can foster a sense of accountability, which in turn enhances student autonomy. Second, the act of evaluating others can improve students’ own skills, thereby heightening their sense of competence. Tseng and Tsai conducted a study on college students’ learning self-efficacy and learning motivation in an online peer assessment environment [13]. Their research findings indicate that in a peer assessment environment, students’ learning self-efficacy and intrinsic motivation are both relatively high. Importantly, the group of students with high self-efficacy has the strongest intrinsic learning motivation, which indicates that competence is positively correlated with motivation. Hsia et al. also found similar results in their experimental study [14]. However, it is noteworthy that they identified a high degree of consistency between student evaluation

results and instructor assessments, which suggests that students are capable of comprehending peer evaluation criteria and providing reliable judgments. This finding not only demonstrates students' competence in meeting the challenges of peer assessment but also reflects their sense of responsibility throughout the process. Therefore, while peer assessment boosts students' learning motivation, it is also the case that they can understand the corresponding evaluation tasks and are highly responsible. In other words, although the possibility of deliberately assigning lower and unreasonable scores due to competitive motivations cannot be completely excluded, students who demonstrate high levels of learning motivation engage in peer assessment with an intense sense of responsibility. Furthermore, the students' high level of confidence reflects their capability to overcome challenges, which effectively supports the maintenance of their intrinsic learning motivation. The students believed in their ability to complete the peer assessment, even though they had never been teachers before (and in fact, they did succeed). In another study examined the impact of peer assessment on student motivation [15]. A few subjective perceptions were collected from participants through interviews that receiving positive feedback and obtaining assistance in completing learning tasks constitute the primary factors contributing to the positive effectiveness of peer assessment. With the strategy of peer assessment, students can deal with learning requirements more easily. This sense of competence can effectively maintain their motivation for learning. From the above reviewed studies, peer assessment has been shown to effectively boost students' motivation to learn and is significantly connected to their feelings of autonomy and competence. This outcome is driven by the enhancement of students' sense of responsibility and the development of their skills, which in turn support the successful accomplishment of learning activities.

3.2 The Potential Threats of Peer Assessment to Motivation

In contrast, the drawbacks and difficulties linked to peer assessment have increasingly been recognized as potential risks that could adversely affect students' motivation to participate in the learning process. Although some students consider peer assessment design to be an effective way to enhance personal abilities and promote individual contributions, a research has pointed out the existence of unfair competition, a phenomenon called "gamesmanship" [16]. Specifically, this implies that when students are aware that their peer evaluations can influence others' grades, they may intentionally give lower scores as a strategy to gain an advantage. This unethical approach is usually aimed at achieving a sense of accomplishment in

terms of scores among peers and winning the admiration of companions on the surface. This may promote the student's enthusiasm for peer assessment in terms of external motivation on an individual level. However, if the matter is exposed or publicly disclosed, it will greatly undermine the student's enthusiasm because the fruits of their efforts will not be properly rewarded. Such a threat of personal score control will reduce their sense of competence, making them feel that "no matter how hard they try, we won't be recognized", thus lowering their intrinsic motivation for learning. Liu and Carless conducted a large-scale survey on peer assessment among students and teachers [17]. Among their results, a considerable number of people were psychologically resistant to this strategy. First, many stakeholders doubt that students possess the competence to evaluate their peers reliably. Peer assessments may fail to persuade both parties involved, despite the fact that this approach is bound to influence individual academic outcomes. This issue can lead to students' sense of distrust and anxiety, which may hinder them from establishing a good cycle in their learning and feedback, thereby affecting their enthusiasm for learning. Another observed trend is that students generally resent the impact of peer evaluations on their academic performance, as they mentioned "power relations" [17]. Students traditionally view teachers as the ultimate authority for assessment. Therefore, receiving critical evaluations from peers, whom they may not see as credible assessors, can undermine their confidence. Typically, students tend to assign lower ratings to peers from other groups and higher ratings to those within their own group. This situation not only causes insufficient constructive feedback for students across different groups, which undermines their sense of competence, but also distorts self-assessments within groups, hindering their initiative for self-improvement. Such an intra-group scoring strategy is similar to the "non-resentment stance" described by Stančić, with a goal of achieving a high score collectively [18]. Or it might be out of concern for the friendship with peers, but all of these behaviors would cause peer assessment to lose its original role in enhancing abilities. Students' motivation for academic cooperation is also susceptible to deterioration. This creates a dilemma between friendship and knowledge for those students who have an intrinsic motivation for learning, that is, those who want to improve their academic level. It may even shake their autonomy for learning. Similarly, poor feedback quality does not contribute to improvement or enhancement either. A relevant study emphasized that an essential aspect of peer assessment is offering students training throughout the process [19]. Their meta-analysis shows that peer assessment is more effective when students receive relevant training than when they have not

received relevant training. Another notable point is that some low-quality peer assessment results only consist of scores, which are almost meaningless for students' feedback. When students spend time but do not receive effective improvement suggestions, it will dampen their enthusiasm for reflection and have a negative impact on their learning motivation. Clarifying the regulations not only aids in preventing unjust and harmful assessments, but also effectively persuades students, fostering internal coherence and academic growth.

3.3 Key moderating factors in Peer Assessment

The impact of peer assessment on college students' learning motivation is not simply a matter of promotion or inhibition. It shows significant context dependence and is constrained by multiple factors. SDT provides a powerful framework for understanding its mechanism. Empirical research shows that in actual teaching environments, peer assessment may simultaneously enhance students' autonomy and sense of competence, thereby promoting learning motivation. However, it may also weaken these psychological needs due to improper design or environmental factors, resulting in complex and even contradictory effects on motivation. Potentially, the effectiveness of peer assessment depends on three key factors: the design and standards of peer evaluation, the setting of anonymity, and the training and preparation of students. First, the structure of the evaluation task and the clarity of the scoring criteria directly affect students' cognitive load and sense of fairness when participating in the review process. If the evaluation criteria are ambiguous and the task requirements are unclear, it can easily lead to confusion and even anxiety among students, thereby weakening their sense of competence and intrinsic motivation. A clear, structured, and closely linked to learning objectives evaluation standards not only improve the quality and consistency of feedback but also enhance students' sense of self-determination during the evaluation process, thereby supporting the formation of their intrinsic motivation. Moreover, the effectiveness of the feedback is crucial. A single score, for instance, is undoubtedly insufficient. The effective peer evaluation system also requires detailed descriptions of flaws or suggestions for improvement. This aspect is precisely the necessary content for students to enhance themselves. Second, anonymity plays a crucial role in regulating the social dynamics and power relations in peer assessment. In a non-anonymous peer assessment environment, students may lose their original positive motivation to receive learning feedback due to concerns about friendship. Not only that, there may be a mentality of retaliatory scoring for non-academic issues, or even the bad behavior of lowering each other's scores through "gamesmanship"

simply for the sake of competition. Such behaviors undermine the validity of the evaluation, damaging the trust and connection among students, which could suppress their learning motivation. Anonymous peer assessment, on the other hand, can to some extent reduce interpersonal pressure, allowing students to focus more on the task itself and quality judgment. Thus, they are more likely to develop their evaluation skills and academic confidence in a fair environment. Finally, the prior training and psychological preparation of students are the important foundation for the successful implementation of peer assessment. Most students lack corresponding training and experience when they first take on the role of evaluators. Hence they tend to have self-doubt with a high likelihood of choosing compromising scores out of concern for damaging peer relationships. Through systematic training, such as clarifying evaluation criteria, conducting case analysis, and practicing simulated peer assessment and feedback, students can not only improve their evaluation skills but also enhance their understanding and acceptance of the entire process. Then students could better integrate into the peer assessment activities and ultimately promote their internal motivation to reach their academic goals.

4. Conclusion

This article reveals that peer assessment seems a double-edged sword for college students' learning motivation. Its ultimate effect depends on the quality of the implementation process and the specific context. Overall, on the one hand, when designed properly, peer assessment can effectively promote students' intrinsic motivation by meeting their basic psychological needs: granting evaluation power can enhance autonomy, successfully completing evaluation challenges and positive interactive feedback can enhance competence. In contrast, poorly designed peer assessment can cause serious problems. Unfair scoring arising from competitive pressure and partiality due to friendship can damage students' sense of fairness and competence; ambiguous standards and low-quality feedback can cause confusion and anxiety, which may significantly weaken their learning motivation.

Therefore, for educational practitioners, the key lies in careful design rather than simply using this tool. The most important implication is that a clear and fair assessment system supported by comprehensive training must be established. This includes: 1) jointly formulating clear and transparent scoring standards with students to reduce misunderstandings and arbitrariness; 2) implementing anonymous peer assessment to minimize interpersonal pressure and bias; 3) providing students with systematic evaluation training, including how to provide constructive and improvement-oriented feedback, not just scoring.

This paper has a limitation that it does not consider the impact of cultural context on the results. Future research should go beyond the discussion of „whether it is effective“ and delve deeper into „how to be effective in different environments“. Specifically: longitudinal studies can be conducted to test the long-term effects of the motivational effects of peer assessment; more research is needed to examine the validity of peer assessment in online and blended learning environments; comparative studies across cultural backgrounds are particularly worthy of attention, exploring how different cultural values (such as collectivism and individualism) moderate students' perceptions and motivational responses to peer assessment; in addition, research on the specific dimensions of feedback quality and their influence paths is also crucial.

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