

More than grouping and grading: undergraduates' perceptions of teaching alignment, relevance, and feedback in collaborative learning

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The interaction between students in collaborative learning has been intensively investigated. However, the knowledge of teachers' instruction and involvement remains insufficient. Therefore, this study explores undergraduate students' perspective of different types of grouping and assessment in collaborative learning, and how they perceive the teaching-learning environment (TLE). This mixed-methods study included an online survey of 524 undergraduate students at a Chinese application-oriented university and semi-structured interviews with 13 students. This study reveals novel findings by applying alignment to analyses the insufficient design regarding aims and task setting in collaborative learning. The results highlight the relationship between relevance of materials and evoking learning interest. The study provides implications for improving teaching and supporting students' collaborative learning.

Keywords: *collaborative learning, teaching-learning environment, mixed method approach, teaching alignment, interest and relevance, constructive feedback.*

Introduction

Collaborative learning is student-centred and focuses on the interaction between students. Distinguished from individual learning activities, collaborative learning aims at «the inclusion in a group form of learning organization» [1, p. 128]. The interaction between students in collaborative learning has been intensively investigated in Chinese, Russian, and other contexts [5, 2, 12]. Several studies have revealed that teachers' insufficient design and implementation [8, 12]. However, the knowledge of teachers' instruction and involvement remains limited. Furthermore, how students perceive teacher's strategies for teaching enhancement of collaborative learning worths research. Thus, using the mixed method approach [4, 17], this study explores undergraduate students' perspective of grouping and assessment in collaborative learning, and how they perceive teaching alignment, interest and relevance, and constructive feedback.

Teacher's role in collaborative learning

Research has presented a framework of five teacher competencies during the implementation of collaborative learning: «the ability to plan student interaction, monitor, support, and consolidate this interaction, and finally reflect upon it» [11, p. 505]. Nevertheless, more studies have proven teachers' unclear role as a whole, unreasonable or unclear task setting, and ignoring students' needs and emotions [12].

Studies on the criteria for grouping as well as evaluation have been inconsistent. Some studies have found that students prefer familiar team members, while other research shows that heterogeneous groups with the diversity of skills and genders benefit more from collaborative learning than homogeneous groups

[5, 17]. Furthermore, various ways of evaluation emerge, for example, introducing baseline score and conducting free semigroup [15]. Mixed method approach may contribute to deeper those understanding.

As for responding to students' needs, the qualitative study has found that some students in collaborative learning solely rely on teachers' impartment of knowledge and motivated by process assessment [7]. While quantitative findings in the mixed method research [4] has no statistically difference of teachers' level of support across student groups with different academic performance/ranking.

Perceptions of teaching-learning environment (TLE)

Perceptions of the TLE have been classified as four constructs: alignment, interest and relevance, constructive feedback, and peer support [13, 3]. Alignment emphasizes that the aims of teaching are constructively in line with the content, process, and assessment methods [9; 10]. Interest and relevance focuses on students' interests in the learning content and participation in the courses, and how students perceive the relevance of the learning content [9, 13]. Constructive feedback emphasizes the sufficiency of the feedback provided on students' work and the benefits that feedback produces, such as allowing students to form connections with their existing knowledge, removing ambiguity and improving their ways of learning and studying [9, 13].

Perceptions of the TLE have found to be related to students' learning processes, well-being, and academic achievement [3, 10, 14, 16]. They have seldom been used to investigate collaborative learning. Previous studies have emphasised that to make students fully participate in collaborative learning, teacher should design suitable theme, intervene due to students' disengagement, and support students' division and cooperation [12]. This suggests that the theory of perceptions of the TLE might benefit enriched understanding of teaching enhancement for collaborative learning.

Aim and research questions

This study aims to explore undergraduate students' perspective of grouping and assessment of collaborative learning, and how they perceive the TLE. The research questions are as follows:

1. How undergraduate students at the application-oriented university perceive the aims, contents, and materials of collaborative learning?
2. How they perceive the criteria of creating groups and the process of running them in collaborative learning?
3. How they perceive teacher's feedback and evaluation of collaborative learning?

Methodology

Context and participants

The operational definition of collaborative learning in this study is to complete learning tasks in groups. A total of 524 bachelor's students in Chinese application-oriented university participated the questionnaire survey voluntarily in June 2022, 86% of which were female. The distribution of study length from

Year 1 to Year 4 were 28%, 55%, 16%, and 2%, respectively. Sixty percent of participants were from teacher-training programmes: Chinese Language and Literature (26%), English (20%), Political Education (8%), and Mathematics and Applied Mathematics (7%).

Among these participants, 30 students confirmed the willingness to participate in the interview. From August to October in 2022, they were interviewed in sequence considering their gender, programme, the length of study, and self-reported challenges of and roles in collaborative learning ('free rider', inactive member, active member, leader). The interview stopped when 'data saturation' emerged (N = 13).

Materials

Perceptions of the TLE were measured using the HowULearn Questionnaire [13]. It originated from the Experiences of Teaching and Learning Questionnaire (ETLQ; 9) and has been validated in Chinese and other cultural contexts [6, 14].

The interviews were conducted in Chinese by the authors. The semi-structured interview sought to investigate students' descriptions of their either negative or positive experiences in collaborative learning they participated in, their perceptions of teachers' role and design, their motivations of (not) being a leader, their preferred type of evaluation, and their descriptions of teachers' feedback during the whole process, and their preferred type of creating groups and other practical details. The interviews lasted from 47–103 minutes. They were digitally audio-recorded and transcribed verbatim. The selected extracts were translated into English.

Data analyses

One item of peer support ('Talking with other students helps me to develop my understanding') was deleted because the estimate of standardised regression weights was lower than .50 and removing it contributed to an improvement of .10 in Cronbach's α . The reliability of the scale measured using Cronbach's α ranged from .79 to .86. In confirmatory factor analysis (CFA), the model achieved reasonable model fit. Composite reliability (CR) of every construct was higher than .79 and average variance extracted (AVE) was higher than .5. Thus, the convergent validity was adequate.

Qualitative content analysis was used to analyse the data. The research group validated the categories which emerged from the content analysis by comparing the individual authors' categorisations and discussing the inconsistent categorisation until reaching consensus.

Results

Aims: Alignment

The t-test results showed that male students' perceptions of alignment ($M = 3.72$, $SD = .76$, $N = 74$) was significantly lower than that among female students ($M = 3.84$, $SD = .60$, $N = 450$), $F = 3.914$, $t(522) = -1.516$, $p = .048$, 95% CI $[-.27, .03]$, $d = .62$.

For both in-class and after-class collaborative learning, there were two types of themes: applying the introduced knowledge and preparing lessons for next week. Easy tasks, e.g., preparing slides for uncomplicated topics, tended to be assigned directly to individuals. Students took turns to finish it so that there was no communication between members. Moreover, the workload could be uneven. Students also attributed negative collaborative learning experiences to the unclear descriptions of the task. Furthermore, for either single or all groups, teachers sometimes mentioned train of thought and seldom gave specific comments on assignments in the next class.

Collaborative learning came when there were not individual assignments. The length of in-class discussion depended on teachers' observation. Apart from those, students were not informed of the aims of the section from their teachers or had clues to find the reason.

One student was positive about compiling document online:

I hope the task itself requires several persons rather than one person to complete. So that based on my copy and the others' copies, I can see what my shortcomings and advantages are. ... just like editing a document together online. I remember that after someone's feedback, our teacher designed the document which everyone is required to edit it. (F3Y4PSY)

Such practice may contribute to students' gains, reducing loafing, and avoiding collaborative learning in form rather than in nature.

Contents and materials: interest and relevance

In their positive collaborative learning experiences, for most of interviewed students, the themes or the given topics were closed to their learning or life experiences. By contrast, unfamiliar topics led to unsatisfying performance and results. As one said:

I had no happy one (collaborative learning experience) throughout my freshman year. If I had to describe something, it was when the teacher asked us to discuss the selection of dishes as the cook of the school cafeteria. I proposed a dish that I had just seen in social media, then everyone's ideas came up at once. I felt quite happy... This drew others' interests; everyone was talking and thought the idea was good... Everyone participated actively. (F3Y2TI)

We were not familiar with those words, and it was very awkward to read them. Our group didn't know if the translation we searched was correct... We didn't speak clearly, and the audiences couldn't understand them. (F3Y2TI)

Creating and running groups

The ways of forming groups include free combination (83%), teacher' assignment (33%), leader' convening member (24%), system random grouping (19%) and others (4%). Students' preferred ways of creating group are free combination (86%), system random grouping (12%), leader' convening member (12%), teacher' assignment (9%) and others (4%). 'Free combination' sometimes originated from students' preferences, e.g., roommates (considering easier access to the space for group discussion), friends, classmates in the same gender.

Furthermore, 'Transfer standard setting' and 'fixed group' were common: teachers accepted the existing groups divided by class monitor in earlier time or for other courses, even from freshman year to graduation. In addition, completely random grouping is harmful.

It was extremely difficult... The teacher assigned the group randomly... The group leader was also randomly assigned by the teacher... An Excel table was sent, listing who was in the same group as whom. There was more than 100 persons in that class... (The good news was that) in every group, there were at least two people coming from the same programme. (0805TI)

The most used way of communication was combined (online and offline) communication (66%), followed by online communication (34%), offline communication (14%), and one-way communication by the group leader (19%). Moreover, 4% of students said that there was almost no communication. The most preferred way was also combined communication (76%), followed by online (20%) and offline communication (15%), and one-way communication (9%).

Feedback and evaluation

In students' perspective, the difficulties in collaborative learning were not proactive members ($M = 3.77$), disagreements in assigning tasks (3.16), disagreements during discussions (3.02), and leaders' lack of leadership (2.85). To respond to the challenges including knowledge, time management, communication, and interpersonal relationships, asking teachers for help (2.60) were less frequently used than individual study (4.05) and discussing with peers or group discussions (3.70). No significant differences in those variables were found between gender. However, qualitative data showed different perspectives between male and female students.

Students reported their preferences to evaluation by scoring from 1 (completely disagree) to 5 (fully agree). The mean score on quantitative evaluation ($M = 2.86$, $SD = .94$) was lower than that on qualitative evaluation ($M = 3.62$, $SD = .81$) and hybrid evaluation ($M = 3.99$, $SD = .72$). However, according to qualitative data, the guide and feedback during the in-class discussion, shortly after the release of the task, and during the preparation time between classes were insufficient.

They also reported the perspective of giving all group members the same grades based on group performance ($M = 3.43$, $SD = .89$) and giving different grades considering division and cooperation, workloads, and group performance ($M = 3.64$, $SD = .82$). The interviewee had conflicting thoughts about it:

(Same score) Teachers still regarded the presentation as a whole. In fact, we have divided the work separately...no extra attention to each person. (F3Y2TI)

Evaluation may not be a matter of more work, more pay. Those smart people write perfect answers without many thoughts, while some people with less flexible minds may have to think for several days before coming up with a barely acceptable answer. So which one do you think should get the higher score? The

perfect answers get higher scores, but they didn't spend much time and energy. (F3Y4PSY)

If our group score is lower than that of other groups, we will reflect. ...If everyone was scored differently, members will wonder why my score was lower than yours. (F3Y4PSY)

Discussion and conclusion

First, the study found that the aims of the section of collaborative learning were not often integrated into the aims of courses. Second, although student-centred has been emphasised intensively, minor interventions regarding task rationale and grouping will benefit students' understanding, motivations, and participating [7]. Third, the results supported the relationship between relevance of materials and evoking learning interest, which supports the theory of perceptions of the TLE [9,13]. Fourth, the effect of process evaluation remains complex. Regarding feedback, the sufficiency helping students form connections with their existing knowledge, and removing ambiguity are crucial.

The present study has implications for improving teaching and support for students' collaborative learning. In practice, the aims of teaching, learning materials, and assessment methods should be consistent with each other and clear to students [16]. Moreover, it is necessary to ensure the relevance of the content to evoke their interest in actively participating in collaborative learning. Third, encourage or (randomly) check to avoid sole online communication or offline communication.

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**Больше, чем группировка и оценка:
восприятие студентами согласованности преподавания,
релевантности и обратной связи в совместном обучении**

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Взаимодействие между студентами в совместном обучении интенсивно изучалось. Однако знания об обучении и вовлеченности учителей остаются

недостаточными. Поэтому в этом исследовании изучается точка зрения студентов бакалавриата на различные типы группирования и оценки в совместном обучении, а также то, как они воспринимают среду преподавания-обучения. Это исследование смешанных методов включало онлайн-опрос 524 студентов бакалавриата в китайском университете прикладного направления и полуструктурированные интервью с 13 студентами. Это исследование раскрывает новые результаты, применяя выравнивание для анализа недостаточного дизайна в отношении целей и постановки задач в совместном обучении.

Ключевые слова: совместное обучение, среда преподавания и обучения, смешанный методический подход, согласованность преподавания, интерес и актуальность, конструктивная обратная связь.

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