Chinese University Students’ Engagement in Project-Based Learning of English for Academic Purposes

LIU Yalan, ZUO Xiuyuan
University of Shanghai for Science and Technology, Shanghai, China

The effectiveness of project-based learning (PBL) cannot be separated from each group member’s active engagement which is influenced by multiple factors. This study examines the quality of student engagement in PBL, its influencing factors, and its effect on the final grades of two groups of students enrolled in an English for Academic Purposes (EAP) course. Based on the analysis of students’ interactions on social media platforms (i.e., QQ group) and semi-structured interviews, this study found that: (1) The more engaged group perform better in monitoring and interaction; (2) students’ engagement is mainly influenced by the number of professional terms, the quality of online discussions, topic interest, and group leadership; and (3) there is a weak relationship between students’ final grades and engagement. This study provides implications for improving students’ engagement in EAP PBL.

Keywords: engagement, project-based learning, English for Academic Purposes

Introduction

Project-based learning (PBL) is an educational approach that aims to integrate communicative interaction and imaginative thinking, promote peer collaboration, develop students’ problem-solving and critical thinking skills, and stimulate affective and cognitive skills that contribute to intellectual and creative development (Newell, 2003). Markham, Larmer, and Ravitz (2003, p. 4) defined PBL as a “systematic teaching method that engages students in learning knowledge and skills through an extended inquiry process structured around complex authentic questions and carefully designed projects and tasks”. The effectiveness of PBL is largely contingent upon learner engagement, i.e., learners’ active involvement in the learning activity (Reeve, 2012). Previous studies on engagement have primarily adopted a tripartite framework of behavioral, cognitive, and affective engagement (Fredricks, Blumenfeld, & Paris, 2004) to investigate students’ responses to teachers’ instructions. However, Reeve and his colleagues argued that this tripartite framework is incomplete (Reeve & Tseng, 2011). Thereafter, scholars have begun to innovate on the framework of engagement. For example, Sinha et al. (2015) explored collaborative group engagement in a computer-supported learning environment. They divided engagement into four dimensions: behavioral engagement, social engagement, cognitive engagement, and conceptual-to-consequential engagement. The results suggested that the quality of behavioral
and social engagement differentiated groups demonstrating low quality engagement, but cognitive and conceptual-to-consequential forms are required for explaining high quality engagement. Though there are numerous studies on PBL and engagement, research combining these two concepts is scarce, especially in the field of foreign language teaching. To fill this gap, this study aims to investigate university students’ engagement in PBL in an English for Academic Purposes (EAP) class.

**Literature Review**

**Theoretical Framework of Engagement**

This study adopted Philp and Duchesne’s model of task engagement. Philp and Duchesne (2016) pointed out that engagement refers to a state of heightened attention and involvement, in which participation is reflected not only in the cognitive dimension, but in social, behavioral, and affective dimensions as well. Cognitive engagement refers to learners’ mental effort such as sustained attention, alertness and focused attention, and discussion of language form. Social engagement concerns learners’ affiliation, interactiveness, mutuality, and reciprocity. Emotional engagement reflects the affective aspects of interaction, manifesting learners’ feelings and attitudes toward interaction, including both positive (e.g., enthusiasm, interest, enjoyment, willingness to communicate, and feelings of connection) and negative (e.g., anxiety, frustration, and boredom) emotions. Behavioral engagement indicates learners’ task focus, that is, on- or off-task participation. However, considering the argument that learners’ behavioral engagement is seen as a reflection of cognitive, emotional, and social engagement (Dao, 2021), we only focus on learners’ engagement from three dimensions: cognitive, social, and emotional engagement.

**Research on Learner Engagement**

Scholars have explored learner engagement in language teaching and learning from diverse perspectives. Wang and Lee (2021) conducted a multiple-case study to explore how three Chinese undergraduates engaged agentively in an assessment as learning-focused writing classroom. The results revealed that students displayed different degrees of agentic engagement, which was characterized by their collaboration in assessment co-construction, and proactivity in self-regulating their learning. Factors affecting engagement have also been studied. For example, emotional intelligence is positively associated with behavioral and emotional engagement and negatively associated with behavioral and emotional disaffection (Thomas & Allen, 2021). To explore the effect of self-regulated writing strategies on students’ L2 writing engagement, Zhou and Hiver (2022) pointed out that the greater students’ use of self-regulated learning (SRL) strategies in writing was, the more engaged they reported being in their L2 writing classes. With regard to language proficiency, there was a significant difference between the three levels of proficiency (elementary, intermediate, and advanced) in terms of their cognitive engagement, that is, advanced learners used more logical discourse markers than the other two levels (Garcia-Ponce & Tavakoli, 2022). Zabihi and Ghahramanazadeh (2022) investigated the effect of proficiency pairs on engagement and found that higher proficiency learners in a mixed proficiency pair might be more likely to ignore rather than support their lower proficiency partners during pair interactions, which might in turn lead to low degrees of collaboration.

Previous studies on students’ engagement are mainly conducted from individual level (Wang & Lee, 2021; Thomas & Allen, 2021; Zhou & Hiver, 2022), and social engagement in those studies is often neglected. However, Philp and Duchesne (2016) emphasized that in the context of instructed language learning, the social
dimension to interaction should be foregrounded as a dimension of engagement. Thus, the current study examines Chinese university students’ engagement from cognitive, social and, emotional aspects in PBL of EAP. The research questions the study attempts to answer are as follows:

1. What is the quality of Chinese university students’ engagement in project-based EAP learning?
2. What are the factors that affect students’ engagement?
3. To what extent are students’ final grades associated with their engagement in the PBL?

Methods

Participants

We recruited L2 learners from a university specializing in science and technology in China. Participants (N = 66) were from two intact classes of an academic English listening and speaking course. They were sophomores aged from 17 to 20, and mostly majoring in engineering.

Procedure

At the beginning of the course, the teacher asked the students to form self-selected groups, with four to five members in each group. Students selected one topic from the textbook as the object of their group project, worked together on the topic for about 10 weeks, and gave a group presentation in class during Week 11 and Week 12. In order to complete the project, students were asked to conduct three out-of-class group discussions. Students could choose online or offline modes, but they must ensure that each mode was employed once. During the class presentation, each student in the group presented the findings about their selected topics and graded other students’ presentations. Based on the quality of students’ out-of-class group discussions, four groups were purposefully selected for more in-depth follow-up interviews. Data from two groups were used for this study.

Data Collection

Data were collected via semi-structured individual interviews and QQ group chat records. The semi-structured individual interview was arranged immediately after the group presentation, and questions were asked in Chinese from three aspects: experiences of English learning, past cooperative learning experiences, and engagement across the three group discussions. The interview was mainly conducted through Tencent Conference (except for one student who was interviewed face-to-face), and the duration of each interview was from 40 minutes to one hour. Interview data were recorded with the consent of the students for subsequent data processing.

Data Analysis

Two typical groups were chosen for the present study. Group 4 performed well in the out-of-class group discussions and presentation, demonstrating a high level of engagement, while Group 8 did the opposite. Interviews were transcribed verbatim and then encoded with NVivo 11 plus.

The coding process was based on Chen’s three-level coding (Chen, 2000): open coding, axial coding, and selective coding. Considering that we have ensured selective coding—the three dimensions of engagement, then open coding builds on this, that is, identifying and coding sentences that reflect students’ cognitive, social, and emotional engagement. After that, the coded sentences are classified into sub-categories, which is called axial coding. The coding scheme is shown in Table 1.
Table 1
Coding Scheme of Student Engagement

<table>
<thead>
<tr>
<th>Categories</th>
<th>Sub-categories</th>
<th>Codes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cognitive engagement</td>
<td>Attention</td>
<td>Extent of concentration in group discussion</td>
</tr>
<tr>
<td></td>
<td>Monitoring</td>
<td>Monitoring on group members</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Monitoring on oneself</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Monitoring on tasks</td>
</tr>
<tr>
<td>Social engagement</td>
<td>Perceived collaboration</td>
<td>Group cohesion</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Group communication</td>
</tr>
<tr>
<td></td>
<td>Perceived mutual help</td>
<td>Language support</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Non-linguistic suggestions for each other</td>
</tr>
<tr>
<td>Emotional engagement</td>
<td>Negative emotion</td>
<td>Troubled, painful etc.</td>
</tr>
<tr>
<td></td>
<td>Positive emotion</td>
<td>Fulfilled, satisfied etc.</td>
</tr>
</tbody>
</table>

**Results**

The Quality of Students’ Engagement in EAP PBL

To answer the first research question, the interview data were coded based on the three dimensions of engagement. Background information of participants and their out-of-class discussion modes are illustrated in Table 2. As shown in Table 2, there are four students in Group 4. Students 1 and 4 are female while Students 2 and 3 are male; and Student 3 is the group leader. There are five students in Group 8 and all of them are male. Student 5 is the group leader. The modes of out-of-class discussions for Group 4 were online-offline-offline while Group 8 adopted modes of online-online-offline.

Table 2
Background Information of Participants and Discussions

<table>
<thead>
<tr>
<th>Group</th>
<th>Members</th>
<th>Gender</th>
<th>Modes of out-of-class discussions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group 4</td>
<td>Student 1</td>
<td>Female</td>
<td>Online-offline-offline</td>
</tr>
<tr>
<td></td>
<td>Student 2</td>
<td>Male</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Student 3</td>
<td>Male/leader</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Student 4</td>
<td>Female</td>
<td></td>
</tr>
<tr>
<td>Group 8</td>
<td>Student 5</td>
<td>Male/leader</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Student 6</td>
<td>Male</td>
<td>Online-online-offline</td>
</tr>
<tr>
<td></td>
<td>Student 7</td>
<td>Male</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Student 8</td>
<td>Male</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Student 9</td>
<td>Male</td>
<td></td>
</tr>
</tbody>
</table>

Students’ cognitive engagement can be studied from two dimensions: attention and monitoring. Attention aims to analyze students’ cognitive engagement by exploring whether they pay attention while listening to members to express their views in group discussions. From the interview data, both groups reported that they had difficulty in keeping concentrating on others’ sharing in English. As Student 1 said in the interview: “I was distracted because I couldn’t understand some words”. Student 3 and Student 6 also expressed the same view that the difficulty of professional terms would affect their attention. Student 9 thought the way of online discussion affected his attention. He commented in the interview: “For online discussions, the sound quality of
some group members may not be good, so I don’t want to listen to it”. Student 2 and Student 5 held the same opinion and expressed that inattention mainly occurred in online English discussions.

From the above analysis, we can see that both groups experienced inattention while listening to members express their views in English, especially in online group discussions. Further, we can conclude that the two groups’ cognitive engagement in the aspect of attention is not ideal when they had English discussions, particularly in the online context.

**Monitoring** was coded based on tasks, group members, and oneself. However, no monitoring on group members and monitoring on oneself were found in Group 8.

In terms of monitoring on tasks in Group 4, the group leader did more than the other members. Student 3 said: “After idea sharing in the first discussion, each of us should choose a perspective, and then others would evaluate this perspective. This evaluation was generally spontaneous, which means that we should improvise rather than reading the manuscript”. Members of Group 4 were well aware of the fact that one member’s part of presentation included too many professional terms, which might be quite difficult for the audience to understand, and tried to formulate solutions to this problem before the class presentation. Student 3 described their solutions in the interview: “Our solution to this problem was to have that group member write the Chinese and English meanings of all the terms related to saccharose on the blackboard during the midterm presentation, in case the students down there did not understand”. In addition to the above monitoring of group interaction and mid-term presentation, there were also monitoring of video recordings and PowerPoint slides, which were done by Student 3 (e.g., decision on using Tencent Conference for video recording and PPT modification).

Group 8 did not do well in terms of task monitoring, considering that some members of the group did not finish their class presentation within the time limit. When asked about the time management issue, Student 5 answered: “We noticed this problem and decided to improve it in the final presentation. I deleted a large part of the content. But unexpectedly, it still exceeded the time limit”. Results indicated that Group 8 carried out fewer monitoring behaviors than Group 4 and the solution to the identified problems was not well implemented.

**Monitoring on group members** is also reflected in the leader of Group 4. As Student 3 stated: “As the group leader, I asked them to send it (speech draft) to the QQ group, and then we would discuss it”. The aim of this behavior is to let members know each other’s discussion content, which is conducive to subsequent video recording.

**Monitoring on oneself** of Group 4 is shown as follows. Student 3 reported in the interview: “After the first recording, I realized that a host was needed for the discussion…We didn’t have a host in the first discussion, and the atmosphere was very embarrassing for quite a while. Everyone was stunned and didn’t know what to say, so I played the host the second and third time”. When negative emotions arose, students in Group 4 noticed the negative feelings and attempted to regulate them. As Student 1 said, “For some time I was too harsh on myself, and then I lowered my requirements slightly to enlighten myself”.

For the social engagement, two sub-categories emerged: perceived collaboration and perceived mutual help. Perceived collaboration includes group cohesion and group communication while perceived mutual help includes language support and suggestions for each other.

High group cohesion is reflected in Group 4. Students in this group worked collaboratively toward their common goal, which was manifested in Student 3’s remarks: “Our group never complained; we all felt that we could cooperate with each other to form a better atmosphere”. As the group leader, he also said that no member
of the group was irresponsible for the tasks, every time he assigned a task, all the other members were very cooperative, which showed high group cohesion. From the initial selection of the topic to the division of labor to the midterm presentation, the group adopted a very democratic approach, and the group leader fully considered and incorporated the views of each group member. This group demonstrated an atmosphere of mutual help, openness, tolerance, and unity.

On the contrary, Group 8 did poorly in group cohesion. The teacher’s request was to complete the research on a topic in groups. They mistakenly thought that under a big topic, each member chose a small direction to study. Their misunderstanding of the task is the main reason for their low group cohesion. As Student 5 said: “What we did was a personal academic presentation, not a group presentation”.

For the group communication of Group 4, when asked if they would voluntarily share their information and ideas with others, most of the group members answered yes except Student 1 who was rather introverted. The group leader’s remarks also indicated the frequency of group communication: “Everyone would have a discussion with others in the process of writing to ensure logical links between different sections”. Moreover, their communication in QQ group is frequent.

For the group communication of Group 8, given that the topics they each studied were less relevant, there was relatively little information sharing and idea exchange. In addition, the communication of this group seemed somewhat ineffective. Members’ opinions were often ignored. For example, Student 6 once raised questions about the order of presentation in QQ group but nobody responded to his concern.

Language support refers to the behavior of helping members complete words or sentences. In Group 4, Student 4 often provided support to Student 1. When Student 1 encountered difficulties in expression, it was usually Student 4 that helped her complete the expression. Such language support was not observed in Group 8.

Members in Group 4 also provided each other with non-linguistic suggestions regarding body movements, eye contact, and speech content. For example, Student 4 pointed out non-linguistic problems existing in the group presentation: “I told them that the information they found might be a little inconsistent with our theme, and the content was incoherent”. In Group 8, three students said they had not offered any suggestion to other members.

Students’ emotions evoked in the process of completing the group project were analyzed. Only one student in Group 4 experienced negative feelings. She mentioned her feelings in the interview: “I felt quite troubled at first because I couldn’t think of any suitable topic. When we decided on a topic, I got troubled again because I couldn’t find any relevant information about the topic”. The other three members of Group 4 all showed positive emotions about group discussion and learning. Student 2 described his sense of fulfillment in the last group discussion: “The last discussion was concerned with our rehearsal. I observed the speeches of the other three group members and put forward some suggestions, which provided me with a sense of fulfillment”. Student 3 talked about his satisfaction with group progress in the interview: “I felt more and more satisfied with the performance of my group members in the group discussions”. For the emotional engagement of Group 8, they only experienced negative emotions in the discussion. As Student 8 said in the interview, “I basically would not start preparing until it was almost too late. It was very painful to rush the deadline. There were only a few hours left before I began to search information. I really couldn’t write anything, but I had to write something for discussion”.
Factors Affecting Students’ Engagement

To answer the second research question, we coded the factors that influenced students’ engagement from the interviews. The first influencing factor is the number of professional terms. Difficult and unfamiliar professional terms might hinder students’ cognitive engagement in group discussions. For example, Student 5 said, “It is difficult to remember some professional terms”. Student 3 also mentioned the cognitive load he experienced in processing the professional terms: “There were a lot of professional terms in our group, such as saccharose, so I needed to think slowly and in this way I was easily distracted”. The second factor influencing student engagement is the low quality of online discussions. Students pointed out in the interview that online discussion was easily affected by the Internet; group members were more likely to talking simultaneously; and interactions were not as direct as offline.

The third factor affecting students’ engagement is topic attraction. As Student 4 said, “If it was a boring topic, I might have some repulsive feelings and would probably feel reluctant to make careful preparations”. The last factor is group leadership which affected the engagement of students from the two groups. The leader of Group 8 was somewhat autocratic in decision making. He mentioned his problem in the interview: “I just told members when to discuss online and when to discuss offline without consulting them. This is something I need to improve if I had another chance to be a group leader”. Compared with the leader of Group 8, the leader of Group 4 adopted a more democratic approach: “The tasks before each discussion were assigned by me, and then I would ask for each member opinions”.

Except for the above-mentioned factors, coordination of members’ time and group atmosphere also affected students’ engagement. Student 7 mentioned the time constraint problem in the interview: “The first two online discussions were basically set at 9:00 p.m. or 10:00 p.m. because one of the members had to work part-time on the weekend. It was so late that we just wanted to finish our discussions as quickly as possible”. Student 9 paid more attention to the discussion atmosphere: “I think the frequency of my engagement in the discussion was related to the atmosphere of our group, that is, if our group was actively engaged, I would have been actively engaged”.

The Relationship Between Students’ Final Grades and Engagement in the PBL

To answer the third research question, we calculated the students’ final grades and group average grades (see Table 3). The high engagement group had higher average and individual grades than the low engagement group, and it was also observed that the grades gap between the members of the high engagement group is only four points at most, indicating that each student in this group was actively engaged in the PBL. On the other hand, the low engagement group had a larger grades gap of up to 15 points, implying that the members of this group had different levels of engagement in PBL.

Table 3
Final Grades of Two Group Students

<table>
<thead>
<tr>
<th>Group 4</th>
<th>Grades</th>
<th>Group 8</th>
<th>Grades</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student 1</td>
<td>86</td>
<td>Student 5</td>
<td>76</td>
</tr>
<tr>
<td>Student 2</td>
<td>86</td>
<td>Student 6</td>
<td>80</td>
</tr>
<tr>
<td>Student 3</td>
<td>87</td>
<td>Student 7</td>
<td>83</td>
</tr>
<tr>
<td>Student 4</td>
<td>90</td>
<td>Student 8</td>
<td>68</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Student 9</td>
<td>83</td>
</tr>
<tr>
<td>Average</td>
<td>87.25</td>
<td></td>
<td>78</td>
</tr>
</tbody>
</table>
The results suggest that there is a relationship between students’ engagement in PBL and their final grades. However, we cannot conclude that high engagement necessarily brings a high final grade. It should be noticed that students’ final grades include not only discussions and mid-term presentation grades, but also final exam grades. The impact of individual English proficiency on the final grades has to be taken into account.

Discussion

This case study explored two groups of students’ engagement in EAP PBL. Students worked in small groups on a project and presented their findings in class after three out-of-class discussions on the selected topics. This study selected two groups of students from eight groups in two classes for the case study, and analyzed the quality of student engagement, the influencing factors of engagement, and the relationship between engagement and final grades from the group level.

Results revealed that the quality of students’ cognitive, emotional, and social engagement varied across the two groups. The highly engaged group performed better in terms of monitoring and interaction, and their emotional experiences were mainly positive. This finding corroborates Wang and Lee’s (2021) study on L2 learners’ agentic engagement in an assessment as learning-focused writing classroom, which found that an increased presence of task-facilitating emotions and a decrease of task-withdrawing emotions boosted students’ behavioral engagement, e.g., attention and effort in completing the projects.

There are many factors affecting student engagement in PBL, including the number of professional terms, the quality of online discussions, the interest in the topic, and the leadership. In line with Ji, Park, and Shin’s (2022) investigation in a synchronous online second language learning environment, technical problems (e.g., poor internet connection) were found to have impacted learner engagement and satisfaction significantly. Likewise, many learners in Ji et al. (2022) study responded that technical problems hindered their behavioral, cognitive, and emotional engagement and satisfaction. This study also echoes Leeming’s (2019) finding that leadership in task-based group interaction rather than proficiency or extraversion was more important in predicting behavioral engagement in group conversation tests. Strong leaders encourage mutuality, reducing silences and helping the flow of conversation.

Additionally, the result indicated that there was a weak relationship between final grade and engagement, supporting Qi’s (2021) study, which pointed out that student engagement and English achievement were weakly correlated. However, the final grade is calculated by the teacher according to the students’ grade in course work and in final exam, and the final exam is all listening questions except for a written reflection on presentation skill use. Compared with students’ engagement in group projects, students’ own listening ability might be more strongly related to their grades. Thus, we could hardly draw any definite conclusions regarding the relationship between students’ final grades and their engagement in group projects.

Conclusions

This study explores the factors that influence students’ engagement in EAP PBL, which provides insights for the subsequent improvement of students’ engagement in and outside the classroom. At the same time, it has important implications for the introduction of PBL in academic English classrooms.

The limitations of the study have to be noted. First, this study only lasted for one semester. Further longitudinal studies can be conducted to investigate the development of students’ engagement over time.
Second, given that only two groups of students from the same EAP class taught by one teacher were investigated, the findings may not be generalized to other contexts. Future research can expand the number of participants while changing the learning environment to produce more generalizable findings.

References