Students’ Academic Achievement and Satisfaction in a Blended Learning Community of College English in China: A Quasi-experimental Study

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Abstract
The research aimed to make a quasi-experimental study of College English in a Chinese blended learning community environment. A mixed method was adopted to collect data about students’ academic achievement and learning satisfaction. Academic achievement consisted of obtrusive data from the final exam, and learning satisfaction data came from a unified standard questionnaire organized by the university. Utilizing quasi-experimental design, results showed that the experimental class (C1) adopting the framework of blended learning community (BLC) earned a higher level of academic achievement and satisfaction. It is concluded in this research that the BLC framework was shown to have a positive effect on students’ academic achievement and learning satisfaction than face-to-face (FTF) learning in the context of English learning in higher education. Pedagogical implications and future research recommendations were also included.

Keywords
blended learning community, academic achievement, learning satisfaction

Introduction
The phenomenon of low individual participation, poor group order, insufficient motivation, too simple interaction, low resource utilization, and low level of knowledge construction in blended learning draws a lot of attention from researchers (Morton et al., 2016; Rasheed et al., 2020; Turula, 2018). How to help students correct this behavior deviation in blended learning? Organizational behavior provides such a possibility. As an interdisciplinary field to study individual behavior, group behavior and organizational structure, group dynamics is found to be in high consistence with blended learning. Group dynamics theory and blended learning community both emphasize that learning takes place in the process of interaction between members and groups, stresses the sharing and flow of knowledge, focuses on the interaction between individuals and groups, and pays attention to the interaction and win-win cooperation of group members. The specific internal consistency is reflected in the logical starting point and research content, such as constituent elements and learners’ roles, knowledge source and learning metaphor.

Lewin (1951) holds that the relationship between individuals and between groups is not homogeneous and the influence of learning environment on all members is also different in the educational field. It is not a static state, but a dynamic development process. Different power relations inside and outside a learning environment will affect the behavior, habits and learning effect of individuals and groups. Garrison (2016) believes that the third stage of e-learning development is blended learning of online and offline integration. (Satar & Akcan, 2018) studied the blended learning community based on online learning space from the perspective of the dynamic development of social relations and pointed out that the importance of the interactions between members has been under-researched in previous studies on learning community.

Literature Review
Blended Learning
Graham et al. (2019) points out that blended learning is being adopted all over the globe in higher education. Blended learning is defined as the combination of face-to-face teaching and online teaching (Graham, 2006), with the goal of...
improving the efficiency and effect of the teaching process (Garrison, 2016). Osguthorpe and Graham (2003) pointed out that there are mainly three categories of blended learning in a certain course: activities blend, students blend and instructors blend. Blended learning environments vary from each other with different goals in different contexts (Sanchez Ruiz et al., 2021). This research focuses on blending online and offline learning activities.

There seems to be a consensus among researchers that blended learning methods have potential to impact the learning process and outcomes (Bernard et al., 2014; Lu et al., 2018; Peng & Fu, 2021). Blended learning was found to have a positive effect on better academic achievement (Evensen et al., 2020; Gronljen et al., 2021; Shang & Liu, 2018), to be more effective in terms of declarative and procedural knowledge instruction (Aguado et al., 2011), to be more self-regulated (Joe et al., 2017), and more motivated (Zhang et al., 2021). Students tend to be likely to seek help from partners in blended learning (Broadbent, 2017) with more learning support (Chiu, 2021). Instructor participation, student-instructor interaction, and instructor-directed learning environment were credited with greater pedagogical effect (Herbert et al., 2017; Taghizadeh & Hajhosseini, 2021). Thus, the blended learning community framework proposed in this research is intended to combine the advantages of traditional offline learning and those of virtual online learning, with the goal of creating a student-friendly learning environment and promoting a deep integration of information technology and language learning.

Learning Community

The concept of “learning community” is widely used in the field of education and has been deeply discussed in theory and empirical research in the world. Boyer (1995) put forward that “learning community” has common goals and undertakes respective responsibilities, thus forming a mutual learning process of mutual assistance, and finally obtains common growth in collaborative teams. Research topics on “learning community” mainly focus on participants, strategies and pedagogical design. There is no unified concept and cognition of learning community in the academic field, and the subjects for study vary from curriculum (Isbell, 2018), teacher professional development (Cheah et al., 2019), and student groups (Reeves, 2019). Different researchers also try to find strategies to build a learning community using different methods, such as action research (Reeves, 2019), case study (Isbell, 2018), big data research (Teo et al., 2017). With the deep integration of information technology and education, research trend of learning community has also turned to the study of learning community based on cyberspace, such as research of Facebook learning community with blended learning methods (Yilmaz, 2016), or the research of blended (hybrid) learning community in Canvas (Hilliard & Stewart, 2019).

Researches on this topic began at the beginning of the 21st century in China. Research objects were relatively rich, involving its theory, practice and construction strategies, but the focus stayed on teachers’ professional development and online learning community (Hu & Wu, 2020; Li et al., 2021; Shi & Yang, 2014). (1) In terms of basic theories, researchers have been continuously expanding and deepening their understanding. In addition to constructivism and distributed cognitive theory, there were also exploratory studies in different fields such as ecological philosophy, social psychology, and organizational behavior. (2) As for specific practical models, researchers focused on theoretical construction and practical research of different forms of learning community, such as online learning community, teacher learning community, classroom learning community, professional learning community, and school learning community. (3) For the construction strategy, the literature showed that there was no unified understanding in the academic field.

To sum up, there are some deficiencies in the research of learning community at home and abroad, such as vague definition, inconsistent practice objects, and individualized construction strategies. In recent years, the subjects of research were limited within teacher groups and the online learning community, ignoring the research on interpersonal relationships in a blended learning community.

Theoretical Framework

The BLC framework in this study is learning-centered, using MOOC resources and micro videos as teaching auxiliary content, SPOC platform as the medium (Umoc LSM), and flipped classroom as a complementary form to build an online and offline learning community. BLC can be understood as the integration and interaction of virtual learning community and physical learning community in the classroom and around the campus.

Blended learning community, developed on the basis of community-based learning (Hafkesbrink & Schroll, 2011), consists of discourse community (Swales, 1990), relationship community (Hu, 2005), community of practice (Lave & Wenger, 1991), and community of knowledge (Scardamalia & Bereiter, 2003). As mentioned by (Borg, 2003), members in a discourse community do not only share speeches together, but also have common goals. Nevertheless, whether discourse community carried common goals or not remains controversial (Swales, 1990). Swales (1990) first claimed that discourse community was limited to the form of written language, while spoken communication was added in 1998. With the expansion of technology development, it is reasonable to extend the context of discourse into the online community. When students see each other at the first time, they are more likely to build bonds through affective expression, mediating by open communication toward group cohesion (Garrison, 2016). Thus, discourse is the first and foremost tool to establish a learning community.
Hu (2005) wrote a book called Guanxi Community, which is interpreted as a community in this research based on the related literature (Chung et al., 2016). Garrison’s (2016) sub-dimension group cohesion in the Community of Inquiry model is a similar state of harmonious relationships. Previous studies related Guanxi (relationship in general) with technology acceptance and or use of social media (Chen, 2017; Chung et al., 2016). Students’ social values in a collectivism society in China are more likely to be consistent with a guanxi-based interpretation of interpersonal relationships (Holmes et al., 2015; Witt, 2012).

Community of practice (CoP) is considered as one of the clearest model in a wide range of social learning theories (Barton & Tusting, 2005). Originated from Lave and Wenger (1991), CoP indicates that learning takes place in a joint community of practice with members’ mutual engagement to achieve a state of establishing a shared repertoire of resources or gaining knowledge together (Lave & Wenger, 1991). Groups come together for a shared purpose, developing related competence through social interactions of various knowledge, transferring into other contexts (Tseng & Kuo, 2014). Negotiation in the process of building routines for interactions (Zydney et al., 2012) among members help create a positive learning environment and atmosphere for them to reflect on, revise and refine their collective practices.

Community of knowledge (CoK) comes from the model of knowledge-building community (Scardamalia & Bereiter, 2003). It was developed in an online learning environment promoting students’ collaboration called Knowledge Forum, which was similar to the LMS context of this research (Zhang et al., 2011). CoK attempts to challenge students’ collective inquiry on the advancement of the frontiers of their knowledge. By discussing together on problems of understanding, students carry out research and investigations over time to revise their strategies, promoting progress of the community toward common goals (Bielaczyc & Ow, 2014).

Research Design

Utilizing a quasi-experimental research design, this study applied BLC practical cycle into the experimental group, while the control group remained FTF learning with web-enhancements (see Table 1). They had the same textbook, the same online resources covered, and the final exam assessment remained the same. However, BLC considered online participation and quiz scores as part of the final exam score, while FTF had no compulsory requirement for online participation. Another major difference was the delivery of course content. For BLC, students had additional responsibilities outside of class, including LMS assignments. Furthermore, the BLC students were in class for two-thirds of the time compared to the FTF students.

The BLC practical route is a four step dynamic interactive learning cycle. The winter semester had 12 weeks. The instructional process of BLC group was elaborated in details as follows:

1. The first 3 weeks: A preliminary diagnosis of the participants was carried out. SWOT (strengths, weaknesses, opportunities, threats) and SOAR (strengths, opportunities, aspirations, realities) analysis were used to help participants understand themselves more comprehensively. SWOT & SOAR was used extensively in different contexts to analyze students’ own learning or the related environment (Jebraeily et al., 2020; Li, 2020).

2. The second 3 weeks: On the basis of common interests and habits, students strengthen communication in their favorite topics and build emotional bonds with each other. Gradually, they pay more attention to the management of the impression of individuals and groups, improve emotional identity, and establish psychological contracts, to expand the interpersonal network, and form the relationship community.

3. The third 3 weeks: Goal-setting is considered as an important step in online self-regulated learning (Zimmerman, 2015). The resonance of psychological contract and emotion can promote group members to form a common vision, plan common specific goals, establish group rules and regulations, clarify the division of roles, and effectively create basic conditions for the preliminary construction and practice of knowledge, so as to form a community of practice with joint participation and mutual assistance.
The fourth 3 weeks: The 4D appreciative inquiry (AI) model—discovery, dream, design, destination—was used to visualize their learning process, including the degree of resource sharing within the group, the level of knowledge construction and the frequency of team members’ interaction (Woo & Paskewitz, 2021). In addition, the AI 4D model was organized at the end of the semester, facilitating students’ reflection about their performance (Gaida et al., 2016) and the revision of learning plans for the next semester in a better visually represented form (Albó & Hernández-Leo, 2019).

Research Methods

This was a quasi-experimental study adopting a mixed methodology approach, utilizing qualitative and quantitative methods to confirm and verify the research results. It was convenient for researchers to obtain data from multiple sources and synthesize them, helping to gain a more in-depth and comprehensive understanding (Creswell, 2008). This study used academic achievement, satisfaction survey and interviews to assess the effectiveness of BLC and FTF model.

Participants. Participants were 74 non-English major freshmen from a university of foreign studies. The experimental BLC group (n=39) adopted the BLC framework and designed the course on the basis of the above framework (see Figure 1), while the FTF group (n=35) was equivalent to that of the traditional classroom-based study. The two courses were taught by the same teacher with advanced knowledge and skills in teaching.

Procedure. The context of this current study was an undergraduate integrated English course. The course was delivered in a BLC format and a FTF format simultaneously in the winter term of 2019. Both delivery methods were the study focus. According to the ethic regulation, students were called upon to finish the survey anonymously at the end of the winter semester.

Measures. The survey instrument on student satisfaction about the course was developed by the university teaching board with many experienced experts according to the documents of the Ministry of Education and its special context. The reliability and validity were validated by the university teaching board.

As you can see from Table 2, there are 10 items in this survey. Each is of different weight. The single mean of each item is 90 (Excellent=90; Good=80; Medium=70; Qualified=60; Unqualified=50 below). The survey was administered anonymously online to encourage students’ participation and honesty of students.

Semi-structured interview. The interviews were conducted online due to the COVID-19, 2 weeks after the final exam. The researcher used open-ended interview questions to better explore the emerging questions of the participants. Questions included: Are you satisfied with the BLC (FTF) teaching format? Which aspects of BLC (FTF) teaching format has positively or negatively affected your academic achievement and satisfaction? Do you have other suggestions for this course? 26 students (S1–S16 from C1 and S17–S26 from C2) selected randomly from the two groups took part in the interview process.

Figure 1. The proposed framework of blended learning community.
Table 2. The Satisfaction Survey.

| No. | Evaluation index                                                                                                                                                                                                 | Weight |
|-----|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|
| 1   | The teacher is upright, rigorous in study, fair in handling affairs, harmonious with students, pay attention to teaching and educating people, answer questions and solve puzzles.                                   | 0.1    |
| 2   | The teacher is skilled in content, clear and accurate language expression, large amount of information, rich learning resources, novel content, and theoretical and practical connection.                     | 0.15   |
| 3   | The teacher’s explanation objectives are clear, clear-cut, prominent, and clear-cut in layers, and easy to understand.                                                                                         | 0.1    |
| 4   | The time distribution of teaching links is reasonable, and there is no long-time video broadcasting during the lecture.                                                                                       | 0.05   |
| 5   | Teachers and students interact well. The teacher can activate the classroom atmosphere in various ways, encourage students to participate in classroom question and discussion, and effectively stimulate learning interest. | 0.15   |
| 6   | The teacher can adopt modern teaching technology reasonably, and the teaching effect is good.                                                                                                                | 0.1    |
| 7   | The teacher can effectively organize classroom management, control classroom discipline, and remind students of bad habits like sleeping and playing mobile phones in time to avoid the phenomenon of non-compliance with classroom discipline. | 0.05   |
| 8   | The teacher can arrange out-class tasks scientifically and reasonably, correct them seriously, and have comments or analysis. The evaluation method of course performance can guide and motivate students to learn. | 0.1    |
| 9   | Through course learning, students have mastered the important basic knowledge of the course, formed a relatively complete curriculum framework and knowledge system, which has a lot of harvest. | 0.1    |
| 10  | The teacher seldom be late for class, leaving early, or be absent from school; the teacher does not deal with personal affairs during the class and does not frequently transfer the class time-table. | 0.1    |

Table 3. Independent Samples Test.

| C1 (n=34) | C2 (n=39) |
|-----------|-----------|
| M | SD | M | SD | Sig. |
| Score | 74.91 | 9.01 | 75.21 | 8.28 | 0.885 |

Table 4. Paired Samples Test of C1 (the experimental BLC group).

| Pre-C1 (n=32) | Post-C1 (n=32) |
|---------------|---------------|
| M | SD | M | SD | Sig. |
| Score | 74.13 | 9.58 | 75.16 | 9.15 | 0.351 |

Table 5. Paired Samples Test of C2 (the control FTF group).

| Pre-C2 (n=35) | Post-C2 (n=35) |
|---------------|---------------|
| M | SD | M | SD | Sig. |
| Score | 74.97 | 8.65 | 70.29 | 5.61 | 0.001 |

Results

Quantitative Result

Research question 1: Is there any difference in terms of academic achievement between BLC and FTF?

Academic achievement included the final marks of the course and the learning data stored in the LMS. The experimental group (C1, n=34) and the control group (C2, n=39) were two classes from the same major. Integrated English is a compulsory course for them during college. In order to answer the two research questions, an independent samples t-test (see Table 3) and two paired samples t-test (see Tables 3 and 4) of the final exam scores were made to examine the difference in learning scores between the experimental BLC group and the control FTF group before the research. Table 3 showed that there was no significant difference in learning scores between the experimental BLC group C1 and the control FTF group C2 (p>.05). From Table 4, it is safe to conclude that there are no significant differences in learning scores in the experimental BLC group (p>.05). The number of students decreased from 34 to 32 because one transferred to another major in the middle and another just didn’t make it to participate in the final exam.

There is a significant difference of learning scores in the control FTF group (p<.05). The difference was a decreasing trend from a mean score of 74.97 to 70.29 (see Table 5). The number of students decreased from 39 to 35 because one changed his major and another three just did not make it to the final exam.

The descriptive analysis of learning scores showed that students of the experimental group outperformed those of the control group. As you can see in Tables 4 and 5, the mean scores of the final grades were 75.16 for the experimental BLC group and 70.29 for the control FTF group. As the starting point in both groups was essential identical due to the
differences were statistically insignificant (see Table 3, \( p = .885 \)), a possible explanation was that the final exam was more difficult than the previous one. This means that students in the experimental BLC group were able to achieve better academic achievement.

The analysis of the data of the learning management system also supported the high level of participation of the experimental BLC group (see Table 6). Four representative data categories were chosen to compare the learning process data from the experimental BLC group and the control FTF group. The mean scores of micro-lectures combined the number of videos students learned and the frequency they had for different videos. Online hours included students’ online logging time in total on the online platform. Online tests only consider the quantity of tests that students have taken since the research team believed that the marks of online tests, namely the quality aspect, did not indicate the attitude of students. The online posts were composed of the posts students put online and the posts that students responded to. The descriptive analysis of LSM data supported students’ satisfaction level as well.

Although the experimental group used the BLC model, blending online resources with offline class hours, the control group had access to all online resources while remained the traditional lecturing mode. Umooc LMS was chosen due to its full integration with PowerPoint and Microsoft, user-friendly control of video play speed, and easy upload of quiz questions. All the materials could be uploaded before classes begin, and let the related materials be open to students 2 or 3 days before the unit started. Thus, confusion about module delivery sequence could be avoided to a large extent. Data showed that micro-videos and PowerPoint slides were most extensively used 1 week before the final exam, which confirmed students’ sayings about the reviewing priority advantage. Another possible reason was that LMS data was provided as a part of formative assessment, making BLC more engaging and effective since students didn’t want to fall behind others in terms of online score. This design took students’ satisfaction into consideration as there were evidence showed that the content accessibility to students at a time or a place convenient to them might develop their satisfaction (Richardson et al., 2017). In this research, students’ interview also reflected that accessibility and flexibility was one of the main reasons that increased students’ satisfaction level, empowering students to learn at any time in any place. The disadvantage lies in the students’ likelihood of procrastination (Herbert et al., 2017; Rasheed et al., 2020).

**Research question 2:** Is there any difference in terms of students’ satisfaction between BLC and FTF?

The results of learning satisfaction came from the educational administration system of the university (see Table 2). As is shown in Table 7, 32 out of 33 students in C1 take part in the online satisfaction survey except one.

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**Table 6. Comparison of LSM Data.**

|                      | C1—BLC group | C2—FTF group |
|----------------------|--------------|--------------|
| Micro-videos online (number and frequency) | 82.26        | 56.97        |
| Online hours         | 1803.76      | 712.74       |
| Online tests (number) | 24.13        | 16.54        |
| Online posts (Q & A)  | 57.53        | 35.91        |

**Table 7. The Result of Learning Satisfaction Survey.**

| Item | Weight | Single | Excellent | Good | Medium | Qualified | Unqualified | C1 (n = 32/33) | C2 (n = 38/39) |
|------|--------|--------|-----------|------|--------|-----------|-------------|----------------|----------------|
| 1    | 0.1    | 90.00  | 32        |      |        |           |             | 89.14          | 35             |
| 2    | 0.15   | 90.00  | 32        |      |        |           |             | 89.31          | 36             |
| 3    | 0.1    | 90.00  | 32        |      |        |           |             | 89.31          | 36             |
| 4    | 0.05   | 90.00  | 32        |      |        |           |             | 89.66          | 37             |
| 5    | 0.15   | 90.00  | 32        |      |        |           |             | 89.31          | 36             |
| 6    | 0.1    | 90.00  | 32        |      |        |           |             | 89.66          | 37             |
| 7    | 0.05   | 90.00  | 32        |      |        |           |             | 89.66          | 37             |
| 8    | 0.1    | 90.00  | 32        |      |        |           |             | 89.31          | 34             |
| 9    | 0.1    | 90.00  | 32        |      |        |           |             | 89.48          | 35             |
| 10   | 0.1    | 90.00  | 32        |      |        |           |             | 89.66          | 36             |
| Total |        |        |           |      |        |           |             | 89.5833        | 89.3750        |
that changed his major, and 38 out of 39 students in C2 participate in the online satisfaction survey except the one who didn't make it. There were 10 items in the learning satisfaction survey, covering aspects of the pedagogical design, teaching management, interaction, and time arrangement. The descriptive analysis showed that the satisfaction mean of the experimental BLC group (C1) was 89.5833 and that of the control FTF group (C2) was 89.3750, which triangulated the results of learning scores and learning management system data. The experimental BLC group (C1), with higher level of satisfaction, turned out to be with better academic achievement and more self-regulated learning habits on the online learning platform.

**Qualitative Result**

The interview data were transcribed and provided to the interviewees for approval or possible revisions. This could ensure that the interview transcripts were accurate records of the participants’ points of view of the participants. The researcher and another two research assistants identified main code themes together. Moreover, written manuscripts were provided to interviewees to check the reliability of the coding process.

| Identified themes | Examples |
|-------------------|----------|
| BLC Satisfaction | **Individualization**<br>S11: I choose the content (that is) suitable for me. It’s easier now than before.<br>S12: Convenience is something I want to focus on. I could take my time when taking notes with online resources.<br>S5: . . .SWOT and SOAR are more useful than other tools to (for) me. I was lucky enough to make self-analysis as soon as I entered in to the college.<br>**Flexibility**<br>S7: Watching the videos flexibly according to my time schedule enables me to study more efficiently. My golden time is in the afternoon with a cup of coffee.<br>S8: To stop, and replay as needed.<br>S9: My secret study room doubles my effectiveness in memorizing the textbook paragraphs.<br>| **Interaction**<br>S7: I love to check responses from my classmates and the teacher. I also answer questions to others as well.<br>S9: . . .feedback from the classmates is as helpful as that of the teacher. Groups members are sweet guys, giving me power with the psychological sense of belonging.<br>S14: The offline class was in the same pace of the online one, making it interesting.<br>| **Autonomy**<br>S3: The scores pushed me (to) finish the exercises and quizzes online, (and) I become more self-independent in my English learning.<br>S4: As a coward, I feel (like) I can be someone else on the Internet. I even help some students with their assignments.<br>S8: Goal-setting is the most interesting part for me. When I look back through the semester, I found out that I didn’t make (make) it. I had to make changes next semester.<br>| **Dissatisfaction**<br>S16: The delay day by day let me be very busy in the final week before exam, I’d rather the teacher to make it two.<br>S13: The freshman year was as busy as a dog. I mean I often forget (to do) the online tasks.<br>S1: Believe it or not, I was usually out of Internet connection.<br>S2: There were several times, when I was about to finish the quiz, I was suddenly pushed out of the system. When I re-entered into the page, the mark column showed “zero.”<br>S3: Navigation was too complex and not user-friendly.<br>S6: . . .some of them just didn’t do a thing, they just sit there and enjoy the result of my hard-working process. ACE was not capable enough.<br>| **FTF Satisfaction**<br>S18: With my laptop, I could refresh my learning experiences after class by reviewing the online resources.<br>S23: I found the videos on the platform interesting, although I only watched them when I’m free.<br>S25: The exercises online was (were) beneficial for (to) me.<br>S26: I believe that the key points are there in the videos, so I focus on them for my exam preparation.<br>| **Problem of alignment**<br>S19: . . .if the teacher could connect the videos with the class lectures together . . .<br>S24: After watching the video, I would be distracted in class as I believe (that) what should be taught offline had already been taught online.<br>| **Unequal assessment**<br>S17: Actually I kept up with the learning on the platform, some of them didn’t, but we had almost the same score for performance.
On the basis of the coding template, it was obvious that there were different voices in both BLC group and FTF group. For BLC, satisfaction was reflected upon four perspectives: individualization, flexibility, interaction and autonomy; while dissatisfaction was upon three aspects: procrastination, LSM bugs and group conflicts. For TFT, satisfaction came from two sources: convenience and promotion of learning, and dissatisfaction from problem of alignment and unequal assessment. Robust discussions were made in the Discussion section.

**Discussion and Implications**

In this research, a community-based approach was described to incorporate blended learning community into a compulsory College English course. The combination of online modules and face-to-face courses was found to be synergistic in the integration and strengthening of knowledge. Content was provided using a flipped class mode, combining lecture, discussion and collaborative project. Each unit ended within 2 weeks, starting with related video-preview assignment online in the Umooc LMS, followed by offline lecture with Q & A and interactive activities, and ending with online quizzes or exercises. Time is divided by two-thirds offline and one-third online. Frequently utilized tools online were Sign-in, Questionnaire, Quizzes, and Discussion Board. In the lecture format, new tools like SWOT, SOAR, SMART goal-setting and AI 4D model were introduced every 3 weeks. The course was delivered more effectively, was learning-focused and highly interactive, but was not designed to discuss various interactions.

The development of this community-based approach allowed students to adapt themselves to a blended learning environment in an existing course. The experimental BLC group (C1) expressed positive attitudes toward the instructional model of blended learning community. Students mentioned that BLC strengthened their belongings to the group and increased trust among group members, as they were more likely to establish group identity and trust. The community-based approach is similar to the one depicted by (Hafkesbrink & Schroll, 2011) with empirical evidence from 12 case studies. BLC was believed to be an effective model to integrate blended learning with compulsory English learning. The academic scores, satisfaction survey and the semi-structured interview provided evidence that the BLC model with its four-step interactive cycle worked holistically as a synergy.

Blended courses often utilized micro-videos to deliver key concepts of course content. Despite its usefulness and convenience, there may be shortcomings especially for language learning courses that depend on practical usage and exercises in real-life situations. Possible explanation was that students might develop a feeling of isolation when meeting with highly difficult concepts (Rasheed et al., 2020). For the College English course, highly interactive modules were aimed to build up, together with PowerPoint slides synchronized with micro-videos. Extra Microsoft and PDF files and links to additional materials like songs, lectures, and textbook-related expansive content were also provided. The students’ comments showed that they enjoyed the digital resources in LMS, expanding their horizons and promoting more effective learning.

Another important aspect were the online quizzes. Each unit contained two online quizzes for the 2-week instructional arrangement. Multiple choice and open-ended text-based questions were chosen to check students’ mastery of key concepts and language points. Open-ended question intended to connect textbook-based points to the additional sources, encouraging critical thinking skills and fostering habits of searching for useful information on the internet. The most cited part of the student interviews were the quizzes, which allowed for deep understanding and helped identify reviewing priorities. Continuous assessment helps students identify difficult knowledge points and adjust learning strategies to meet the learning needs (Evensen et al., 2020; Shang & Liu, 2018). Furthermore, activity-related scores strongly affect students’ decision to participate in activities (Herbert et al., 2017). The percentage of online quiz usually reached peak the night before the deadline, exposing some of the procrastination problems mentioned in the interview. Linking student performance online with the final course results proved to be effective in promoting engagement.

A key component of the BLC mode for this course was keeping students in face-to-face sessions. An overview lecture was organized at the beginning of each unit to help summarize key concepts and language points. Due to the didactic nature of overview lectures, the BLC mode designed a four-step interactive cycle in sessions throughout the semester, intending to initiate students collective inquiry and critical thinking of students (Gaida et al., 2016). From the interview results, students mentioned that “SWOT analysis was interesting for me to make my thinking visible” and “setting SMART goals” specified their plans. There was also evidence of the utilization of SWOT & SOAR analysis and SMART goals in classroom to improve students’ academic achievement (Jebrailly et al., 2020; Li, 2020). Besides, students were encouraged to post their puzzles and problems encountered in the learning process online. ACE collected those unresolved questions and brought them into the face-to-face sessions. The Q & A techniques used in these sessions aimed to increase the students’ interpersonal communication skills and enrich their negotiation experiences. The collaborative group work also developed students’ conflict resolving capabilities. In this process, students were expected to develop a sense of community by overcoming the initial confrontation and internal friction. The interview results did reflect the existence of these problems, though the influences diminished as time went on. Exceptional case was there; nevertheless, S6 mentioned in the interview about the unpleasant stories that happened in
their group. In future studies, voluntary principle should be adhered to let students become open in knowledge sharing and intimacy building.

A satisfaction survey was designed to evaluate students’ perceptions of how BLC mode enhance their learning. This survey, originally developed in accordance with the requirement of the Ministry of Education in China, was updated with changes of the university’s development and students’ characteristics. Significantly, students in the BLC group commented that this course in BLC mode improved their learning with feedback from peers and instructors in a technology-supported environment. The individualized pace was also their favorite part. However, other studies found out that blended learning might not satisfy all learners due to interaction issue and technological problems (Taghizadeh & Hajhosseini, 2021; Turula, 2018). In the interview, the students recalled meeting various LMS bugs, though they resolved them eventually. This was proved in previous literature that help-seeking strategies were preferred in blended learning (Broadbent, 2017), and it also highlights the importance of necessary digital support and guidance for students (Chiu, 2021, 2022).

In this research, the effects of a BLC delivery versus a traditional FTF delivery were investigated by measuring exam scores in an English course for first-year students, as well as their course satisfaction evaluations through a survey. A change in teaching strategies toward blended learning improved exam results, which corresponds to the findings of previous studies (Grønlien et al., 2021; Shang & Liu, 2018).

The control FTF group (C2) showed different attitudes toward the FTF learning mode with web-enhancements. For example, some students expressed their satisfaction with the web-enhancements to some extent, “I used to want to improve my English, but I’m not that clever and I don’t want to interrupt others with questions.” With the help of online web-enhancements, those intrinsic-motivated students with poor English basis could find a good way out in their pursuit of knowledge. In this aspect of blended learning, students can move forward at their own pace, and when they reach a specific standard, they can take on new challenges. Still some other students mentioned that as there was no compulsory requirement for online learning, most of the students just did not care about it. This was in line with previous studies’ research results that the establishment of online rules and regulations promoted students’ ownership of their learning (Zydney et al., 2012).

Without sharing the responsibility of learning, students were less empowered and less motivated. Therefore, the students in the control FTF group (C2) lack the motivation to participate in online learning activities without compulsory regulations. Motivation and self-discipline are essential for students to experience success in e-learning (Joe et al., 2017), so the FTF group (C2) experienced a lower sense of satisfaction and achievement. The more motivated the students are, the better they perform in the online group discussion (Zhang et al., 2021), which is the situation of the BLC group.

Limitations
This current study attempts to evaluate students’ academic achievement, online learning behaviors and learning satisfaction under two different learning environments, namely BLC and FTF learning environment with some web-enhancements. Several limitations are listed as follows: first, due to the small sample size, it is difficult to generalize the conclusion. Further research with a larger sampling size should be conducted to make possible generalization; second, changes in student quantity and convenient sampling of interview could be another limitation of the study; third, the formative assessment of the BLC group includes the assessment of online participation and discussion, which could potentially influence the motivation to participate in online learning activities. However, formative assessment of BLC group including the online part is an essential design of this research, which is also critical to evaluate if there is difference between the experimental BLC group and the control FTF group.

Conclusion
The research intends to integrate the online conveniences with offline interactions through a community-based framework in the course of College English. The results show that there could be a possible relationship between perceived satisfaction, learning behaviors, and academic achievement. Those with higher online participation outperform those with lower level both in terms of both learning scores and satisfaction. Students’ motivation is closely related with mark-related formative assessment. This quasi-experimental study finds that linking students’ online performance with course outcome will lead to greater participation, which may result in higher final grade. Additionally, offline sessions should be designed with more emphasis on interaction and group cohesion. Sense of community does not come out solely with the appearance of a group, more active learning techniques should be practiced with more patience. Furthermore, a generalization could not be made of this study as the sample size is small. It is strongly recommended to validate this research result by conducting further researches with a larger sample size. Also, the sense of blended learning community could also be another research topic for the future.

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References
Aguado, D., Arranz, V., Valera-Rubio, A., & Marin-Torres, S. (2011). Evaluating a blended-learning program on developing teamwork competence. *Psicothema*, 23(3), 356–361.

Albó, L., & Hernández-Leo, D. (2019). Conceptualising a visual representation model for MOOC-based blended learning designs. *Australasian Journal of Educational Technology*, 36(4), 1–26. https://doi.org/10.14742/ajet.5178

Barton, D., & Tusting, K. (2005). Introduction. In D. Barton & K. Tusting (Eds.), *Beyond communities of practice: Language, power, and social context* (pp. 1–13). Cambridge University Press.

Bernard, R. M., Borokhovski, E., Schmid, R. F., Tamim, R. M., & Abrami, P. C. (2014). A meta-analysis of blended learning and technology use in higher education: From the general to the applied. *Journal of Computing in Higher Education*, 26(1), 87–122. https://doi.org/10.1007/s12528-013-9077-3

Bielaczyc, K., & Ow, J. (2014). Multi-player epistemic games: Guiding the enactment of classroom knowledge-building communities. *International Journal of Computer-Supported Collaborative Learning*, 9(1), 33–62. https://doi.org/10.1007/s11412-013-9186-z

Borg, E. (2003). Discourse community. *ELT Journal*, 57(4), 398–400. https://doi.org/10.1093/eljt/57.4.398

Boyer, E. L. (1995). *The basic school: A community for learning*. Jossey-Bass.

Broadbent, J. (2017). Comparing online and blended learner’s self-regulated learning strategies and academic performance. *The Internet and Higher Education*, 33, 24–32. https://doi.org/10.1016/j.iheduc.2017.01.004

Cheah, Y. H., Chai, C. S., & Toh, Y. (2019). Traversing the context of professional learning communities: Development and implementation of technological pedagogical content knowledge of a primary science teacher. *Research in Science & Technological Education*, 37(2), 147–167. https://doi.org/10.1080/02635143.2018.1504765

Chen, K. T. C. (2017). Examining EFL instructors’ and students’ perceptions and acceptance toward M-learning in higher education. *Universal Access in the Information Society*, 16(4), 967–976. https://doi.org/10.1007/s10209-016-0494-8

Chiu, T. K. F. (2021). Acceptability of a blended learning model that improves student readiness for practical skill learning: A mixed-methods study. *Focus on Health Professional Education: A Multi-Professional Journal*, 17(1), 3. https://doi.org/10.11157/fohpe.v17i1.116

Gaid, J., Seville, C., Cope, L., Dalwood, N., Morgan, P., & Maloney, S. (2016). Acceptability of a blended learning model that improves student readiness for practical skill learning. *Focus on Health Professional Education: A Multi-Professional Journal*, 17(1), 3. https://doi.org/10.11157/fohpe.v17i1.116

Garrison, D. R. (2016). E-learning in the 21st century: A community of inquiry framework for research and practice (3rd ed.). Routledge. https://doi.org/10.4324/9781315667263

Graham, C. R. (2006). Blended learning systems: Definition, current trends, and future directions. In C. J. Bonk & C. R. Graham (Eds.), *Handbook of blended learning: Global perspectives, local designs* (pp.3–21). Pfeiffer Publishing.

Graham, C. R., Borup, J., Pulham, E., & Larsen, R. (2019). K–12 blended teaching readiness: Model and instrument development. *Journal of Research on Technology in Education*, 51(3), 239–258. https://doi.org/10.1080/15391523.2019.1586601

Gronlienn, H. K., Christoffersen, T. E., Ringstad Andreassen, M, & Lugo, R. G. (2021). A blended learning teaching strategy strengthens the nursing students’ performance and self-reported learning outcome achievement in an anatomy, physiology and biochemistry course – A quasi-experimental study. *Nurse Education in Practice*, 52, 103046. https://doi.org/10.1016/j.nep.2021.103046

Hafkesbrink, J., & Scholl, M. (2011). Innovation 3.0: Embedding into community knowledge - collaborative organizational learning beyond open innovation. *Journal of Innovation Economics and Management*, 7(1), 55–92. https://doi.org/10.3917/jiem.007.0055

Herbert, C., Velan, G. M., Pryor, W. M., & Kumar, R. K. (2017). A model for the use of blended learning in large group teaching sessions. *BMC Medical Education*, 17(1), 1–11. https://doi.org/10.1186/s12909-017-1057-2

Hilliard, L. P., & Stewart, M. K. (2019). Time well spent: Creating a community of inquiry in blended first-year writing courses. *The Internet and Higher Education*, 41, 11–24. https://doi.org/10.1016/j.iheduc.2018.11.002

Holmes, K., Balmakes, M., & Wang, Y. (2015). Red bags and WeChat (Wei-xin): Online collectivism during massive Chinese cultural events. *Global Media Journal*, 9, 1–12.

Hu, B. L. (2005). *Guanxi community*. People’s Publishing House.

Hu, J., & Wu, P. (2020). Understanding English language learning in tertiary English-medium instruction contexts in China. *System*, 93, 102305. https://doi.org/10.1016/j.system.2020.102305

Ishbell, D. R. (2018). Online informal language learning: Insights from a Korean learning community. *Language Learning and Technology*, 22(3), 82–102.

Jebraeily, M., Pirnejad, H., Feizi, A., & Niazkhani, Z. (2020). Evaluation of blended medical education from lecturers’ and students’ viewpoint: A qualitative study in a developing country. *BMC Medical Education*, 20(1), 482–511. https://doi.org/10.1186/s12909-020-02388-8
Joe, H. K., Hiver, P., & Al-Hoorie, A. H. (2017). Classroom social climate, self-determined motivation, willingness to communicate, and achievement: A study of structural relationships in instructed second language settings. Learning and Individual Differences, 53, 133–144. https://doi.org/10.1016/j.lindif.2016.11.005
Lave, J., & Wenger, E. (1991). Situated learning: Legitimate peripheral participation. Cambridge University Press.
Lewin, K. (1951). Field theory in social science. Harper & Row.
Lave, J., & Wenger, E. (1991). Situated learning: Legitimate peripheral participation. Cambridge University Press.
Li, F., Jin, T., Edirisingha, P., & Zhang, X. (2021). School-aged students’ sustainable online learning engagement during covid-19: Community of inquiry in a Chinese secondary education context. Sustainability, 13(18), 1–19. https://doi.org/10.3390/su131810147
Li, L. (2020). The management implications of SWOT & SOAR analysis of classroom dynamics: A case study in China. Organization Development Journal, 38, 23–39.
Lu, O. H. T., Huang, A. Y. Q., Huang, J. C. H., Lin, A. J. Q., Ogata, H., & Yang, S. J. H. (2018). Applying learning analytics for the early prediction of students’ academic performance in blended learning. Educational Technology and Society, 21(2), 220–232.
Morton, C. E., Saleh, S. N., Smith, S. F., Hemani, A., Armeen, A., Bennie, T. D., & Toro-Troconis, M. (2016). Blended learning: How can we optimise undergraduate student engagement? BMC Medical Education, 16(1), 195–198. https://doi.org/10.1186/s12909-016-0716-z
Osguthorpe, R. T., & Graham, C. R. (2003). Blended learning environments: Definitions and directions. The Quarterly Review of Distance Education, 4, 227–233.
Peng, R., & Fu, R. (2021). The effect of Chinese EFL students’ learning motivation on learning outcomes within a blended learning environment. Australasian Journal of Educational Technology, 37(6), 61–74. https://doi.org/10.14742/ajet.6235
Rasheed, R. A., Kamsin, A., & Abdullah, N. A. (2020). Challenges in the online component of blended learning: A systematic review. Computers & Education, 144, 103701. https://doi.org/10.1016/j.compedu.2019.103701
Reeves, A. (2019). Classroom collaborations: Enabling sustainability via student-community co-learning. International Journal of Higher Education and Sustainability, 20(8), 1376–1392. https://doi.org/10.1108/ijhes-11-2018-0220
Richardson, J. C., Maeda, Y., Lv, J., & Caskurlu, S. (2017). Social presence in relation to students’ satisfaction and learning in the online environment: A meta-analysis. Computers in Human Behavior, 71, 402–417. https://doi.org/10.1016/j.chb.2017.02.001
Sánchez Ruiz, L. M., Moll-López, S., Morano-Fernández, J. A., & Llobregat-Gómez, N. (2021). B-learning and technology: Enablers for university education resilience. An experience case under COVID-19 in Spain. Sustainability, 13(6), 3532–3622. https://doi.org/10.3390/su13063532
Satar, H. M., & Akcan, S. (2018). Pre-service EFL teachers’ online participation, interaction, and social presence. Language Learning and Technology, 22(1), 157–184.
Scardamalia, M., & Bereiter, C. (2003). Knowledge building. In J. W. Guthrie (Ed.), Encyclopedia of education (2nd ed., pp. 1370–1373). MacMillan Reference.
Shang, F., & Liu, C. Y. (2018). Blended learning in medical physiology improves nursing students’ study efficiency. Advances in Physiology Education, 42(4), 711–717. https://doi.org/10.1152/advan.00021.2018
Shi, L., & Yang, L. (2014). A community of practice of teaching English writing in a Chinese University. System, 42(1), 133–142. https://doi.org/10.1016/j.system.2013.11.009
Swales, J. (1990). Genre analysis: English in academic and research settings. Cambridge University Press.
Taghizadeh, M., & Hajhosseini, F. (2021). Investigating a blended learning environment: Contribution of attitude, interaction, and quality of teaching to satisfaction of graduate students of TEFL. The Asia-Pacific Education Researcher, 30(5), 459–469. https://doi.org/10.1007/s40299-020-00531-z
Teo, H. J., Johri, A., & Lohani, V. (2017). Analytics and patterns of knowledge creation: Experts at work in an online engineering community. Computers & Education, 112, 18–36. https://doi.org/10.1016/j.compedu.2017.04.011
Tseng, F. C., & Kuo, F. Y. (2014). A study of social participation and knowledge sharing in the teachers’ online professional community of practice. Computers & Education, 72, 37–47. https://doi.org/10.1016/j.compedu.2013.10.005
Turlula, A. (2018). The shallows and the depths. Cognitive and social presence in blended tutoring. Technology Pedagogy and Education, 27(2), 233–250. https://doi.org/10.1080/1475939x.2017.1370388
Witt, M. A. (2012). Editorial. Asian Business & Management, 11, 1–4.
Woo, D., & Paskewitz, E. A. (2021). Initiating a cross-sector inter-organizational collaboration: Lessons from a failed attempt at following appreciative inquiry practice. Journal of Applied Communication Research, 49(2), 187–206. https://doi.org/10.1080/00909882.2020.1837914
Yilmaz, R. (2016). Knowledge sharing behaviors in e-learning community: Exploring the role of academic self-efficacy and sense of community. Computers in Human Behavior, 63, 373–382. https://doi.org/10.1016/j.chb.2016.05.055
Zhang, J., Hong, H. Y., Scardamalia, M., Teo, C. L., & Morley, E. A. (2011). Sustaining knowledge building as a principle-based innovation at an elementary school. Journal of the Learning Sciences, 20(2), 262–307. https://doi.org/10.1080/10508406.2011.528317
Zhang, X., Pi, Z., Li, C., & Hu, W. (2021). Intrinsic motivation enhances online group creativity via promoting members’ effort, not interaction. British Journal of Educational Technology, 52(2), 606–618. https://doi.org/10.1111/bjet.13045
Zimmerman, B. J. (2015). Self-regulated learning: Theories, measures, and outcomes. International Encyclopedia of the Social & Behavioral Sciences, 21, 541–546.
Zydney, J. M., DeNoyelles, A., & Kyeong-Ju Seo, K. (2012). Toward the case under COVID-19 in Spain. Sustainability, 4(6), 3532–3622. https://doi.org/10.3390/su13063532
