Relationship of Learning Environments to Students' Interactive Behaviors in a Project-based English Course

Shuichi Amano, Shizuoka University, Japan
Yoshihiko Yamamoto, Shizuoka University, Japan

Abstract

A number of studies of Active Learning (AL) explained that AL provided collaborative learning for students. The authors of this study believe providing good learning environments for students is important in order to improve AL course. The aim of this study is to identify a way to utilize AL classrooms for English language teaching in higher education. To this end, we conducted a questionnaire survey for students in project-based English classes both in a regular classroom and in an AL classroom. A total of 81 students participated in the survey. The results indicated no systematic difference between the normal classroom and the AL classroom in terms of students' perceived in-class behavior such as student-student interaction (normal classrooms, 2.92; AL classrooms, 3.06), student-teacher formal interaction (normal classrooms, 2.74; AL classrooms, 2.81), and student as teachers (normal classrooms, 2.70; AL classrooms, 2.67) on a four-point scale. This result may be due to the equivalence in basic classroom conditions other than AL elements, such as the number of students, the size of the classroom, and classroom capacity. We therefore argue that classroom characteristics other than AL elements should also be described in future AL classroom research.

Keywords: active learning classroom, project-based learning, English language teaching, students' behavior

iafor

The International Academic Forum
www.iafor.org

Introduction

This paper explores our second study in a series of continual efforts to utilize active learning classrooms for English language teaching in higher education. Higher education institutes in Japan have been urged to shift to active learning, as stated in a policy report published in 2012 by the Ministry of Education, Science, Culture, and Sports of Japan (MEXT). In response, Shizuoka University, where the authors of this study currently work, established AL classrooms on two campuses. These classrooms have been available since April 2015. Since then, we started to research how we can maximize the effectiveness of using AL classrooms for teaching English for university students.

AL is a comprehensive term that refers to various learning activities. It facilitates AL by avoiding the kind of passive learning that happens when knowledge is transferred from teachers to students in one-sided lectures (MEXT, 2012). In Japan, collaborative learning and project- based learning (PBL) are often cited as one of AL methods (e.g., Chubu Chiiki Daigaku Group Tokai A Team, 2014). As a number of studies have already showed examples of teaching procedures for cooperative or project-based English learning (e.g., Yamamoto & Kimura, 2013; Yoshimura, Hiromori, Kirimura, & Nishina, 2017), it is now necessary to develop guidelines for the effective use of the facilities at our university, which has recently established AL classrooms. Therefore, this study taught project-based English language courses in both normal and AL classrooms to compare the issues found in each case.

Effect of Learning Environments

Of the previous studies of the effect of learning environments on teachers and students, few focused on English language teaching (e.g., Brooks, 2012; Park & Choi, 2014). Brooks (2012) examined the actual in-class behaviors of teachers and students in normal and AL classrooms. Experiment lessons in both normal and AL classrooms were conducted during introductory biology courses that share the same course title, learning content, and level of experience of the instructor. Both were planned to reduce one-sided lectures as much as possible. For investigation, multiple trained observers monitored and recorded the lessons using prescribed observation forms more than ten times per classroom. The results showed that, in the normal classroom, the instructor spent a longer amount of time lecturing from the podium in front of the class, whereas discussions between students were limited. On the other hand, in the AL classroom, the instructor left his podium and spent more time providing advice and consulting with student groups.

According to Park and Choi (2014), both "golden" and "shadow" zones exist in normal classrooms when it comes to seating arrangements. Golden zones are preferred: seats in these offer optimum learning conditions, whereas seats in shadow zones are believed to prevent students' vision, understanding, and concentration. In other words, seat position in normal classrooms makes a difference in learning conditions. On the other hand, Park and Choi suggest that there is no such difference caused by seat position in AL classrooms. Moreover, their questionnaire survey reveals that students evaluated AL classrooms as preferable to normal classrooms because they felt that AL classrooms facilitated their active participation.

However, to the best of our knowledge, the effect of learning settings on students and instructors is still unclear in the field of English language teaching. Thus, we practiced project-based English lessons in both regular normal and newly introduced AL classrooms, and compared student's perceived behaviors in the classrooms by conducting a questionnaire

survey (Amano, Yamamoto, Fujimori, & Matsuno, 2016). The results indicated that the AL classroom was evaluated more highly for individual activities, but, contrary to the above-mentioned studies, students did not perceive any difference during peer- or group activities. One of the causes of this unexpected result might be the desk arrangement of the AL classroom used for the study. The desks in the AL classroom were in essence fixed because of laptop wiring and power supply poles. This might have prevented students from contacting each other in the classroom. Thus, we conducted a modified replication in an AL classroom on the other campus at Shizuoka University. We present the results and interpretation, as well as discuss further issues found in the analysis.

Methodology

Participants of this study

Participants of this study were first-year non-English majors in four different classes at Shizuoka University, a four-year national university in Japan ($N = 81$, consisted of male $= 41$, female $= 35$, no answer $= 5$). All participants were native speakers of Japanese who had previously been exposed to formal instruction in English as a foreign language (EFL) at Japanese schools. Fortuitously, there were no international students in any of the four classes. A supplemental survey revealed that only one student had previously studied in an English-speaking country. This student had studied in the United States for a month as an exchange student during junior high school. None of the remaining participants had resided in an English-speaking country for more than a month. Two classes were conducted in an AL classroom ($N = 41$) and the other two were in a normal classroom ($N = 40$). The second author was the instructor for every class.

Classroom Conditions

Since this study focuses on learning environments, it is necessary to describe classroom conditions in detail. Table 1 summarizes the features of normal and AL classrooms used in this study. Comparing the size of the classrooms, although there was a small difference in the depth of the room (normal classroom 10.80m, AL classroom 14.40m), the width hardly varied (normal classroom 7.13m, AL classroom 7.80m). There were 23 long desks that were almost fixed in the normal classroom (See Figure 1), while there were 40 easily- movable small desks in the AL classrooms (See Figure 2). There were two blackboards in the front and rear of the normal classroom, compared to three whiteboards in the front, rear, and left sides of the AL classroom. While students could use 41 laptop computers and 6 slide projectors for group discussion in the AL classroom (though unfortunately the computers are not visible in Figure 2), they had no choice but to bring their own computers in the normal classroom.

Table 1

Features of Each Type of Classroom (When the Podium is at the Front of the Room)

| Classroom type	Normal	AL
Depth	10.80m	14.40m
Width	7.13m	7.80m
Desk/Table	23	40
Blackboard, etc.	Two blackboards in total, front and back of the room	Three whiteboards in total, front, back and left side of the room
Projector and screen	One, in front of the room	Six in total, front, back and left side of the room
Computer	None	42 in total, one for instructors and 41 for students
Tablet	None	Seven for students
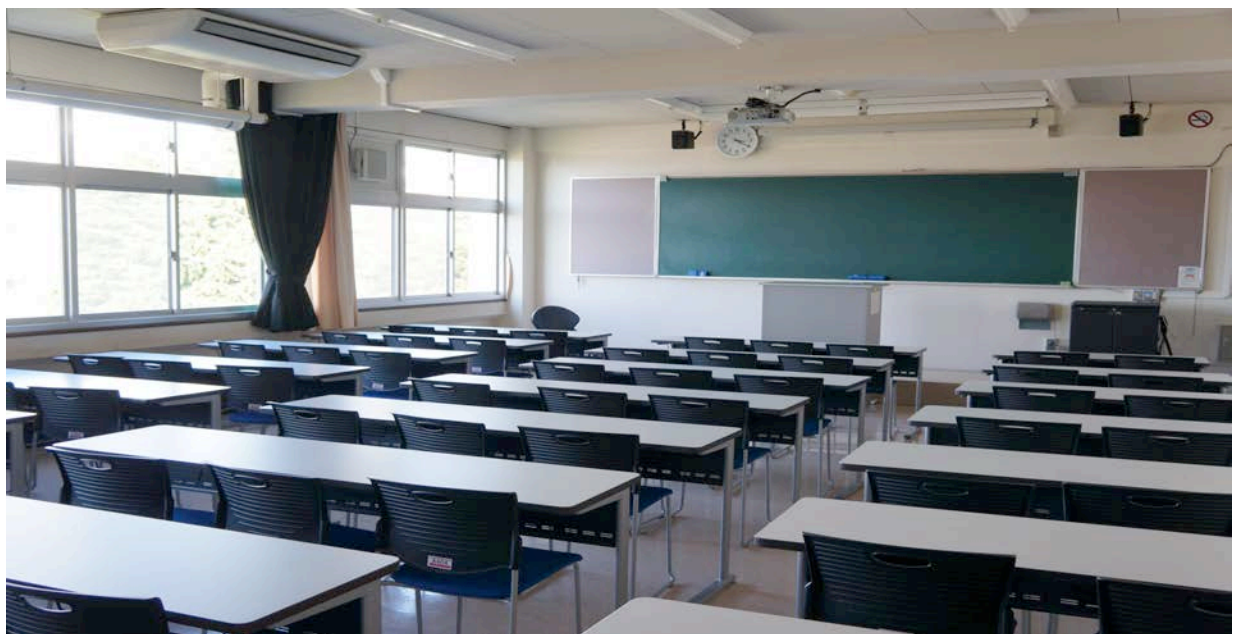
Figure 1. Arrangement of classroom equipment in the normal classroom

Figure 2. Arrangement of classroom equipment in the AL classroom

Lesson Procedures

This section explains the details of lesson procedures. The project-based English lesson in this study was implemented in a semester-long compulsory course for first-year students titled "English Communication I," which focuses on the development of EFL communication skills. The essentials are the following:

1) Students on their own select and research a topic of interest throughout the semester. Conducting research in English is recommended.
2) Students learn basic academic writing and presentation, with a view to the necessity of writing a bachelor's thesis in English or making an English presentation when they get a job in the future.
3) Students deepen the research content through presentations and discussions, and submit a report written in English at the end of the semester.

The instructor supported students' progress while considering the effective use of the facilities in each classroom. The medium of instruction was entirely English.

Next, the entire lesson plan for each class time and throughout the semester will be explained. The right-side columns of Table 2 show the lesson plans during the semester. Topics were established for each lesson from the first week to the ninth week, and corresponding 20-minute lectures were delivered. Moreover, as the left-side columns of Table 2 show, teacher-designated out-of-class assignments were required in the classes from the first week to the ninth week. At the beginning of the next lesson, students presented their achievements within a group and evaluated each other's work. These assignments helped the progress of students' project as well. They were designed to complete the first draft of the final report when all homework tasks were completed. Starting from the 11th week, end-of-semester presentation sessions prepared throughout the semester were conducted. The student audience provided peer feedback for the presentations using feedback sheets prepared by the instructor.

Table 2

Lesson Plans in the Semester

Week	Lecture contents	Out-of-class tasks
1	Introduction	Find topics and summarize related articles
2	Research methods	Find topics and summarize related articles
3	How to find research topics	Find subtopics and summarize related articles
4	How to narrow down the topics	Find subtopics and summarize related articles
5	How to make a presentation	Find subtopics and summarize related articles
6	How to make slides	Write part of a report based on the above
7	Basics of academic writing 1	Write an introduction
8	Basics of academic writing 2	Write a conclusion
9	How to write a presentation script	Prepare for an end-of-semester presentation
10	Presentation practice	Prepare for an end-of-semester presentation
11	End-of-semester presentation 1	Provide peer feedback for other student speakers
12	End-of-semester presentation 2	Provide peer feedback for other student speakers
13	End-of-semester presentation 3	Provide peer feedback for other student speakers
14	End-of-semester presentation 4	Provide peer feedback for other student speakers
15	Comprehensive review of the course	Submit an end-of-semester report

Next, the contents of each of the 90-minute sessions will be described. Figure 3 shows a typical example of lessons from the second to ninth weeks. Group discussions based on out-of-class tasks were the first activity in each lesson. Students were encouraged to use English for the discussion. Opportunities to practice their presentations were provided in the classes from the second to tenth lessons. Each group selected a presenter and a facilitator for the week, and the group representatives gave the entire class a practice presentation, based on the outcome of the homework assignment and using a project and a screen in the classroom. Instructor feedback was offered to the whole class after the practice. Then, the instructor provided pre-planned lectures. On average, thirty minutes per lesson were dedicated to allowing students to work on their projects by themselves.
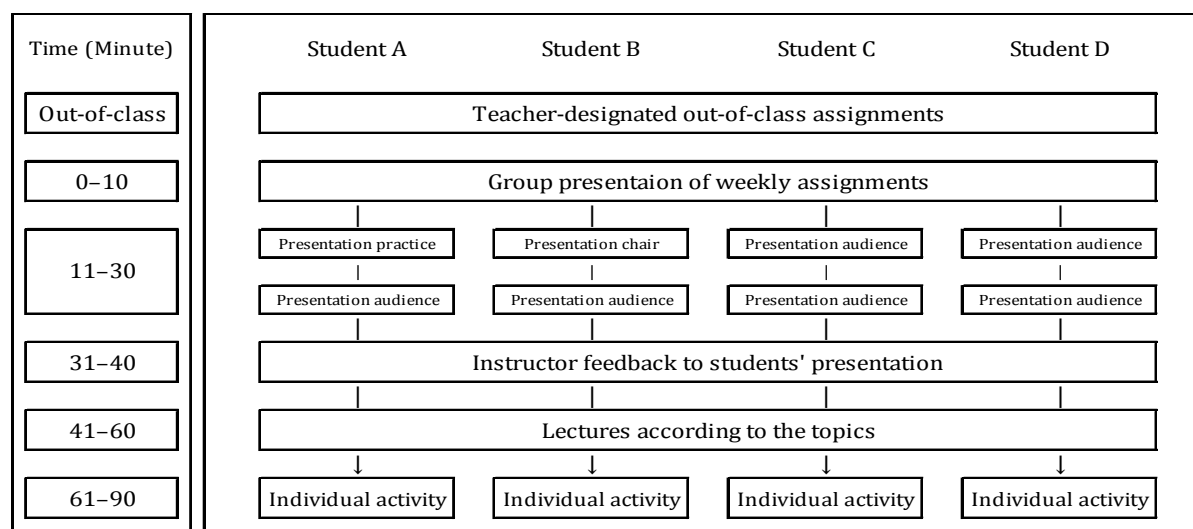

Figure 3. Typical example of presentation lessons

Questionnaire Survey

The University of Minnesota Learning Spaces Research Survey was adopted as the questionnaire for this survey. This 32-item questionnaire consists of four components, Student-Student Relations (ten items), Student-Instructor Formal Relations (five items), Student-Instructor Informal Relations (three items), and Student as Instructor (seven items). The survey includes seven dummy items as well (seven items). The questions which were used in this study are put in the Appendix.

Results

The table in the Appendix presents the means and standard deviations (SDs) for each four-point scale item from the questionnaires completed in the final week. The data indicates that there were little differences in students' responses between the AL and normal classrooms. The internal consistency reliability of each of the four components was determined by Cronbach's coefficient alpha.

Table 3 shows that the internal consistency of three of the components of "student-student relations ($\alpha = .89$)," "student-instructor formal relation ($\alpha = .78$)," and "student as instructor ($\alpha = .82$)" was sufficiently high, but "student-instructor informal relations" were not confirmed in this survey ($\alpha = .60$). Therefore, the means of the items for only the three reliable components were computed and utilized as scaled scores.

Table 3

Internal Consistency of the Components

Components	student-student relations	student-instructor formal relations	student-instructor informal relations	student as instructor
Cronbach's coefficient alpha	.89	.78	.60	.82

Table 4

Results of Non-Parametric Tests

Components		M	SD	z	p	r
Student-student relations	AL classrooms	2.92	0.61	−0.98	.33	.11
	Normal classrooms	3.06	0.50			
Student-instructor formal relations	AL classrooms	2.74	0.61	−0.30	.77	.03
	Normal classrooms	2.81	0.46			
Student as instructor	AL classrooms	2.70	0.52	−0.83	.41	.09
	Normal classrooms	2.67	0.46			

The means and SDs of each scaled score and the results of tests of mean differences are given in Table 4. As the data did not follow a normal distribution, Mann-Whitney U tests were conducted for each scaled score to evaluate the difference between the two classroom types. All three scaled scores did not show significant differences, and the effect sizes were fairly low. This confirms that classroom type had no impact on the perceived behaviors of students who enrolled in project-based English courses. This is consistent with our previous study

(Amano et al., 2016), but not with the other previous studies (Brooks, 2012; Park & Choi, 2014).

Our previous research (Amano et al., 2016) indicated that differences in classroom environment affect learning progress in individuals but do not alter interactions between students. The present study further revealed that the environment did not have any impact on formal interactions between students and instructor. In addition, it did not facilitate students' behaviors to support each other. Quite interestingly, this appears to be inconsistent with previous studies conducted in other contexts. The question is, why do our studies show any effects of the learning environment on students' behaviors?

Discussion

There appear to be two explanations. One pertains to the instructor's behaviors, which we have not yet examined. Brooks (2012) showed changes in both students' and instructor's behaviors in the classroom due to differences in classroom conditions. If there were no changes in the classroom behavior of the instructor in this paper, it may be a reason students' behavior in our study was not affected by the classroom conditions. A second explanation is the possibility that basic classroom settings, such as the number of students, the size of the classroom, and classroom capacity, affected the result. All classes in this research were small classes of about 20 students. Therefore, the students and instructor may have been in an environment where they could communicate easily, irrespective of the classroom type. Furthermore, the fact that there was no big difference in the size of normal and AL classrooms may also explain the result.

Based on the results of this study, language teachers could offer AL style classes in a traditional classroom. It is for sure better to have the AL classroom where it is specially designed for AL. Within the AL classroom, the authors of this study believe that both teachers and students can easily learn their target language. However, as this study showed that teachers could offer quality AL classes in a normal classroom as well, as long as they are well prepared and organized.

Conclusion

This study explored a way to efficiently leverage an AL classroom for project-based English language courses. More specifically, we examined the impact of classroom type (i.e., normal classroom versus AL classroom) on the perceived differences in students' in-class behaviors. The result showed no significant difference between the normal and AL classrooms in terms of scale components such as student-student interaction, student-teacher formal interaction, and student as teachers. The finding on student-student interaction is consistent with that of our previous study (Amano et al., 2016). However, contrary to the assumption in the study, the mobility of desks and chairs does not appear to be a factor. In addition, the survey revealed that classroom type did not make any impact on student-teacher formal interaction. We assume that there may be two possible reasons: instructor's behaviors and basic classroom conditions. These factors seem to at least partly affect the results. However, this study used a small scale data and therefore, in order to improve the quality of this study, the authors of this study will continue this research.

References

Amano, S., Yamamoto, Y., Fujimori, A., & Matsuno, K. (2016). Project-gata eigo jugyo ni okeru active learning kyoshitsu no katsuyo: Jissen hokoku to kongo no kadai. *Journal of Shizuoka University Education, 12*, 101–108.

Brooks, D. C. (2012). Space and consequences: The impact of different formal learning spaces on instructor and student behavior. *Journal of Learning Spaces, 1*(2). Retrieved from libjournal.uncg.edu/index.php/jls/

Chubu Chiiki Daigaku Group Tokai A Team (2014). *Active learning shippai jirei handbook: Sangyokai needs jigyo seika houkoku*. Ministry of Education, Science, Culture and Sports of Japan 'Sangyokai needs ni taioushita kyoiku kaizen jujitsu taisei seibi jigyo' niyoru 'chubuken no chiiki saigyokai tono renkei wo tsujita kyoiku kaikakuryoku no kyoka' Hesei 26 nendo Tokai A team seikabutsu. Retrieved from http://www.nucba.ac.jp/social/report/lecture/entry-14562.html

Ministry of Education, Science, Culture and Sports of Japan (2012). *Aratana mirai wo kizuku tame no daigaku kyoiku no shitsuteki tankan ni mukete: Shogai manabi tsuzuke shutaiteki ni kangaeru chikara wo yoseisuru daigaku e*. 2012 Central Council for Education Report. Retrieved from http://www.mext.go.jp/b_menu/shingi/chukyo/chukyo0/toushin/1325047.htm

Park, E. L., & Choi, B. K. (2014). Transformation of classroom spaces: Traditional versus active learning classroom in colleges. *Higher Education, 68*, 749–771.

Yamamoto, Y., & Kimura, S. (2013). Teaching and managing a project-based English course to the college students in diverse levels of English proficiency. In *Asian Conference on Education 2013 Official Conference Proceedings* (pp. 920–933).

Yoshimura, M., Hiromori, T., Kirimura, R., & Nishina, Y. (2017). Motivating EFL students through the use of project-based cooperative learning. *ThaiTESOL Journal, 30*, 41-57.

Appendix

The Questionnaire Items Used in the Study (Adapted from University of Minnesota Learning Spaces Research Survey)

	Items	Components
1	I've learned something from my classmates.	Student-Student Relations
2	The students sitting near me rely on each other for help in learning class material.	Student-Student Relations
3	In general, people sitting near me in class work well together on class assignments, questions, etc.	Student-Student Relations
4	I know something personal about the people sitting near me in class.	Student-Student Relations
5	I feel comfortable asking for help from my classmates.	Student-Student Relations
6	I am acquainted with the students sitting near me in class.	Student-Student Relations
7	During class, I often have a chance to discuss material with some of my classmates.	Student-Student Relations
8	The students sitting near me respect my opinions.	Student-Student Relations
9	In this class, other students pointed out a helpful resource.	Student-Student Relations
10	In this class, other students explained a concept to me.	Student-Student Relations
11	The material covered by the tests and assignments in this class was presented and discussed in class or online.	Student-Instructor Formal Relations
12	My instructor makes class enjoyable.	Student-Instructor Formal Relations
13	My instructor wants me to do well on the tests and assignments in this class.	Student-Instructor Formal Relations
14	Sometimes I feel like my instructor and I are on opposing teams in this class.	Student-Instructor Formal Relations
15	My instructor encourages questions and comments from students.	Student-Instructor Formal Relations
16	The instructor is acquainted with me.	Student-Instructor Informal Relations
17	I am acquainted with the instructor.	Student-Instructor Informal Relations
18	I've spoken informally with the instructor before, during, or after class.	Student-Instructor Informal Relations
19	I can explain my ideas in specific terms.	Student as Instructor
20	The people sitting near me have learned something from me this semester.	Student as Instructor

21	I can clearly explain new concepts I've learned to others in class.	Student as Instructor
22	I can persuade my classmates why my ideas are relevant to the problems we encounter in this class.	Student as Instructor
23	I can use the terminology in this class correctly.	Student as Instructor
24	I can explain my thought process from start to finish to others in class.	Student as Instructor
25	I can help others in this class learn.	Student as Instructor