

Assessing the Impact of Learning Environments on Japanese Students' English Language Acquisition: A Case Study

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Abstract

This study investigated the factors and challenges involved in creating an effective learning environment for university students who are learning English as a foreign language (EFL), in order to recommend methods for developing such learning environments. To this end, two questionnaires were administered to first and second year students at a private university in Kyoto, Japan (Survey A: 133, Survey B: 104). Following the collection of survey results, the data were linked to students' grades (scores of TOEIC). The relation between students' English proficiency and their learning environment was analyzed statistically using SPSS. The results demonstrated that university facilities can play a positive role in students' English learning, which supports the findings of other studies conducted in North America. Classifying learning content into narrower categories and promoting effective spaces for each type of learning is essential to create a more effective learning environment. Moreover, when designing a learning environment outside the classroom, the primary concern should be students' psychological response to the space, rather than mere practical considerations.

Keywords

English as a Foreign Language—Learning environment—Japanese students—university facilities—learning outcome

1. Introduction

The learning environment provided by higher education institutions is supposed to help students improve their academic achievement and personal capacity by stimulating their motivation to learn and by regular evaluation. While many factors can be considered to impact students' learning, the space where learning happens has recently received much attention. Higher education institutions generally offer two types of learning environment—inside and outside of classrooms. Students have learning experiences in both situations. In many studies, classrooms are the main research field for the inside-class, and academic libraries are for the outside-class environment. Some results show that active learning classrooms impact students' academic performance more positively than traditional classrooms. Additionally, some positive impact on student learning has been observed through students' use of facilities, materials, and educational services at academic libraries. However, most of these studies have been conducted in North America, and few can be found in non-English-speaking countries, including Japan. Since it is unlikely that the findings obtained in a North American context can be applied to Japan, unique studies should be conducted in Japanese learning institutions.

Acquiring English skills is a matter of urgency in contemporary Japan. Higher education institutions, in particular, should conduct research investigating the contribution that campus facilities make to Japanese students' learning of English as a foreign language (EFL). However, few studies have investigated the educational relation between specific foreign language courses and campus facilities, even in North America. Although some relevant studies have been conducted in countries like Iran (Ebrahimi 2015), Jordan (Alzubaidi 2016), and China (Bi 2015), they focus mainly on the psychosocial aspects of a learning environment, rather than its physical attributes.

This paper examines whether the environment, spaces, or facilities at a private university in Kyoto, Japan, impact the English grades of students whose majors are not English, and evaluates university facilities that support EFL studies outside the classroom. We believe our research will benefit even

English-speaking countries in terms of designing better foreign language learning environments.

2. Literature Review

2.1. University Learning Environment and its Educational Effects

“Classroom” is usually the first thing that comes to mind as a learning environment. Muthyala and Wei (2013) conducted a study to analyze statistically how two classroom types influence students’ learning. They reviewed prior research by Oliver-Hoyo, Allen, Hunt, Hutson, and Pitts (2004) and Paulson (1999), observing that student grades from active learning classes exceeded those from traditional lecture-based classes. However, there remained unsettled questions about whether and to what degree the physical environment, rather than an active learning or lecture-based instructional style, affected students’ learning outcomes. Brooks (2011, pp. 721-722) dealt with this issue and revealed “students taking the course in a technologically enhanced environment conducive to active learning techniques outperformed their peers who were taking the same course in a more traditional classroom setting.” However, according to Muthyala and Wei (2013, pp. 45), “this study does not address the question of whether a specific type of ALC is more conducive to social constructivist learning or whether any ALC would suffice” and they “sought to study whether space matters by examining student learning in two different types of ALCs over the course of two semesters in an ‘organic-first’ curriculum.” One type of active learning classroom (ALC) is called the Spoke classroom and the other is called the Node classroom (Figure 1). After examining the relation between these classroom layouts and students’ performances, no significant difference was found between the Node and Spoke ALCs. Muthyala and Wei (2013, pp. 49) concluded, “Findings suggest that constructivist learning can be facilitated in any learning space that is conducive to class discussions”.

However, identifying the relation between students’ academic performance and university learning environments outside the classroom is difficult. There are studies from the 1920s that investigated the relation between academic libraries and academic education, and later studies paid more

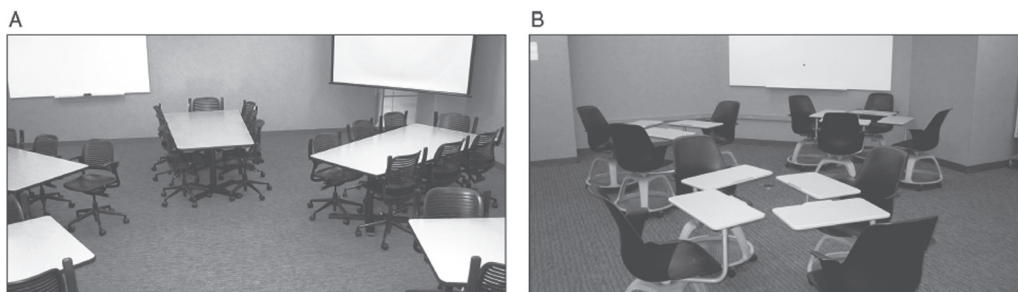


Figure 1 Spoke classroom (A) and Node classroom (B)
(Adapted from Muthyala and Wei, 2013)

attention to this topic. Stieg (1942), Joyce (1961), Snider (1965) (Dissertation), Ory and Braskamp (1988), Whitmire (1998), Wong and Cmor (2011), and Soria, Fransen, and Shane (2013) revealed a statistically significant relation between students' academic performance and their library use.

In May 2017, the Association of College and Research Libraries released the report "Academic Library Impact on Student Learning and Success: Findings from Assessment in Action Team Projects" (Brown and Malenfant, 2017), and in September, "Academic Library Impact: Improving Practice and Essential Areas to Research" (Connaway, Harvey, Kitzie & Mikitish, 2017). The May report contained research findings from more than 200 postsecondary institutions that participated in the Assessment in Action (AiA) program. The report (pp. 1) stated, "Each institutional context is unique, and the AiA project findings about library impact are not generalizable to all academic settings," but "demonstrations of positive connections between the library and aspects of student learning and success in five areas are particularly noteworthy." The September report was compiled to show how to measure library value for student learning and success, with a report on all project phases and findings, a detailed research agenda based on those findings, a visualization component, and a bibliography of the literature analyzed.

Generally, few studies of academic libraries have investigated the relation between the library facility or service and students' grades in a specific subject. In most cases, studies have addressed the relation between students' performance and students' information literacy, for example, their GPA and the College Student Experience Questionnaire, where academic libraries

perform well. This follows Sayles (1985, pp. 343), an early researcher in this area, who observed, “Librarians have reacted traditionally to subject fields, not courses, so their outlook has been library-oriented instead of course-related.” He focused on the connection between academic libraries and courses by reviewing several studies of syllabi since the 1960s, believing, “Librarians should analyze instructors’ course descriptions and syllabi—and use that information for the creation of library study guides and other service support.”

Later, in 1989, Lauer, Merz, and Craig conducted a syllabi study at two private academic institutions, analyzing students’ use of academic libraries and revealing foreign language students’ lack of library use. However, during the 2000s, some research results reported that academic libraries and librarians had a positive impact on ELL (Bordonaro, 2006; Reznowski, 2008; Hoffert, 2009; Bryan, 2011; Bordonaro, 2013). These prior studies focused not only on English language skills but also on how students’ English ability and information literacy are related. However, the focus of this research was on English as a second language (ESL) not EFL. A study by Bordonaro (PhD. Dissertation, 2004) revealed that EFL students from overseas were willing to use academic libraries to improve their English, to study, and to socialize, and that libraries were effective at improving English skills. This study indicated that university-provided learning environments can positively impact students’ academic performance, both inside and outside of the classroom.

Japan has fewer studies than other countries on the relationship between learning environments and academic performance, but some data can be found on learning commons. Ichimura, Kawamura, & Takahashi conducted an experiment using the Remote Associates Test (RAT) to examine “the impacts given by the different physical environments on the students’ creativity” (2018, p. 56). The results did not show that “the grades of creativity assignments in the learning commons are higher than in the self-study spaces.” However, they did reveal that “the past experiences are pertinent to the high creativity in the learning commons” and in dealing with some simple tasks, “the performances in the learning commons are higher than in self-study spaces” (Ichimura, et al., 2018, p. 60).

Hamajima, Okabe, & Suzuki conducted a survey which analyzed students' "acquired abilities" as learning outcomes and "the changes in their study" as "the indicators based on the students' subjectivity" (2018, p. 7). They found that "the students' 'acquired abilities' during the university years are greatly influenced by 'the changes in their study' through the usage of the learning commons" (Hamajima, et al., 2018, p. 15).

Kihara conducted a research by using the utilization rate of the learning commons and students' GPA. She reported that "the usage frequencies and habits are higher for the students in the upper group of GPA, and the students in the group of more annual usage frequencies get higher GPA." She also concluded that "GPA correlates to the usage of the services which are strongly related to the self-study or an academic curriculum" (2017, p. 125).

Each of these studies focused on learning commons. In Japan, enough research has not been conducted on the relationship between various learning spaces and direct assessments, such as GPA or specific subject grades. Regardless of the different scales and scopes of previously conducted research worldwide, it can be said that learning environments both inside and outside the classrooms can impact students' academic performance.

2.2. English-language Education at Japanese Universities

In recent years, the Japanese government has been promoting "globalization." According to *Longman Business Dictionary*, globalization is "the tendency for the world economy to work as one unit, led by large international companies doing business all over the world." However, while promoting globalization, one of the greatest obstacles facing the Japanese is communicating with people across borders. In most situations in Japan, therefore, the priority skill needed to implement globalization is the acquisition of English language skills. A June 2000 report from the Council for Higher Education states, "The ability to use the globally common language is indispensable in the situation of globalization. Particularly English has been playing a predominant role as an international common language without a doubt, and it can be said that English proficiency as well as information literacy are the basic competencies for taking in, sending out, communicating, and discussing global knowledge

and information.” However, it is often said that the Japanese have insufficient English language skills even after graduating from university.

Albarillo (2017, pp. 652-674) analyzed the difference between EFL and ESL, explaining that ESL learners include “language minority students, bilingual students, generation 1.5 students, immigrant students”; EFL students include international students in the United States. According to Okihara (2011, pp. 71), “Japan can be categorized as an EFL country.” “The ideal English models for English education in EFL style are the norms of native speakers (pronunciation, grammar, culture), and the purpose of the study is to learn the culture of English and to communicate with English native speakers” (Okihara 2011, pp. 73). In other words, English competencies in Japan usually mean skills in EFL, such as reading comprehension, listening comprehension, writing and composition, oral language and fluency, the basics of grammar awareness and structure, and vocabulary development. Most Japanese universities teach the basics of EFL. Therefore, unlike EFL in English-speaking countries, English education and information literacy education are treated separately.

It is very difficult for Japanese students to master practical English skills through the common educational curriculum. People speak Japanese as the official language, and are geographically separated from English-speaking countries. The state of English education in Japan has often been questioned. Bradford (2015, pp. 22) stated that Japan has seen “a dramatic decline in the number of Japanese students studying abroad.” Some consider this the reason that English language ability in Japan has not improved, but others say the lack of English classes that are actually taught in English may be the problem. Lu (2008, pp. 123) reported that the English proficiency of Japanese is lower than that of the Koreans and Chinese, indicating that possible reasons include “social structure and economic demand for English talents,” “educational systems for College English teaching,” and “students’ motivation to learn English.”

To cope with these issues, the Japanese government suggested that universities should “grant credit according to the scores of internationally acceptable exams, such as TOEFL and TOEIC” (Council for Higher Education 2000). The 2003 report set goals such as “be able to communicate

in English after graduating from a junior high school or a high school” and “be able to use English at work after graduating from a university” (MEXT 2003). Similarly, the 2011 report stressed “the importance of continuous and consistent English education throughout elementary school, junior high school, and high school” (MEXT 2011).

At the same time, an improvement in English ability was expected when harnessing the additional support of information and communication technology (ICT), reorganizing the curriculum, enhancing campus facilities such as academic libraries and spaces for active study such as the learning commons, and encouraging self-study outside campus with online e-learning systems. Although many initiatives have been launched in this direction, little research has been devoted to the assessment of how Japanese students use university-provided learning environments to support their English studies.

3. Purpose and Method

The review of prior studies above revealed some positive relation between students' academic outcomes and the learning environments provided at some universities both within and outside Japan. However, in Japan, fewer studies have been conducted to inform the effective utilization of space and related facilities to improve students' academic performance by using direct evidence of student learning such as GPA or the grades of a specific subject (direct assessment). Particularly, it is a matter of great concern that learning environments have not been assessed for their impact on students' English proficiency. The purposes of this study are (1) to identify which factors are involved in creating an effective English learning environment and (2) to recommend methods for developing that learning environment.

To this end, the research procedure was divided into 2 phases, the indirect assessment and the direct assessment. First, two questionnaires were administered to university students as the indirect assessment on the effective places for English learning. After the survey results were organized, data were linked to students' grades (TOEIC scores) to be analyzed as the direct assessment to cover lack of objectivity in the questionnaires. TOEIC

scores were used as the indicator of the students' English proficiency in this study.

There are some other English language proficiency tests in Japan, such as EIKEN, which is Japan's most widely recognized English language assessment, and TOEFL. According to Doi, "each English test has its purpose and features, so the students and the universities naturally have lots of different options depending on their goals and objectives" (2017, p. 124). This study deals with a level of English language proficiency that enables the speaker to "be able to use English at work after graduating from a university" (MEXT, 2003, p. 1) and undertake "internationally acceptable exams" (Council for Higher Education, 2000). For this very reason, EIKEN was removed from the target list as 80% of the test takers are elementary, junior high, and high school students. It is also not a very internationally well-known exam, although it has a high degree of recognition within Japan and is supported by the Ministry of Education, Culture, Sports, Science, and Technology.

TOEFL is one of the most internationally acceptable exam formats and is used in more than 130 countries. A large proportion of those taking the exam are university students. However, it is "100% academically focused, measuring the kind of English used in academic settings" (Educational Testing Service, 2018), and Suzuki points out that "the English communication abilities required in these 'academic settings' are almost at the same level as those of native English speakers," that is, "highly advanced skills" to be able to "understand and discuss everything in classes in English, read academic books in English, organize one's thoughts and write some papers in English" (Suzuki, 2018). As the current study deals with a level of English language proficiency that enables the speaker to "be able to use English at work after graduating from a university" (MEXT, 2003, p. 1), TOEFL was excluded from the target list because of its highly academic nature.

According to Rebeck, TOEIC was developed after EIKEN and TOEFL because as "EIKEN was biased towards reading comprehension and translation questions and TOEFL emphasized academic English, they were not considered suitable as a test for businesspeople requiring communicative

English” (2003, p. 24). Furthermore, “the TOEIC program had its roots in Japan when, in the late 1970s, Japanese university professor Yasuo Kitaoka envisioned the need for a test that would measure the ability to use English in a business setting” (Powers & Powers, 2015, pp. 152-153). Therefore, we have chosen TOEIC as the English proficiency test most appropriate for this study.

The relation between students' English proficiency and their learning environments was analyzed statistically by SPSS. In the following sections, the statistical data provided by each survey are comprehensively reviewed and analyzed and improvements to university learning environments are suggested.

Following are this study's limitations:

- Multilateral analysis cannot be conducted because the study is not based on collaborative research with on-campus facilities, sections, or faculties.
- TOEIC (Listening & Reading) scores are used to measure students' English proficiency, so speaking and writing abilities are not covered.
- The sample size is not large enough.

3.1. General Description of Survey

The targeted university was a private university in Kyoto, and survey participants were undergraduate students not majoring in English. This university comprises eight faculties with 12,806 students (as of May 2016). At this university, as part of Faculty-Wide General Education Courses, with the exception of students in the English Department in the Faculty of Foreign Studies, every student is required to take two English classes per semester, namely English for TOEIC (with Japanese instructors) and English Communication (with native English-speaking instructors).

Generally in Japan, the academic year is divided into two semesters (spring and fall, 15 weeks each). This university follows the credit system defined in Daigaku Secchi Kijun (Standards for Establishment of Universities): “...a class subject for one credit shall normally be organized to contain contents that require 45-hour learning.” One credit represents 45 h of learning, 15 h in the classroom, and 30 h outside the classroom, including preparation and review. Classes are held weekly for 90 min each, and one 90-min class

counts as 2 h per week. Non-English major students must take eight credits from the required English classes: one TOEIC class and one English communication class per semester for 2 years.

This survey was conducted in the required English classes, as officially permitted by the university's Liaison Office of Research Organization, in the following manner.

1. Survey A (end of spring semester)

Period: July 2016, the last day of the spring semester.

Participants: 133 students taking required English classes who attended the last day of the spring semester
42 freshmen (two classes), 91 sophomores (five classes)

2. Survey B (end of fall semester)




Period: Jan. 2017, the last day of the fall semester

Participants: 104 students taking required English classes who attended the last day of the fall semester
36 freshmen (two classes), 68 sophomores (five classes)

The response rate for each survey was 100%. Second-year students were included among survey participants to identify any difference between first- and second-year students. Although Surveys A and B were conducted in the same classes each time for continuity, fewer participated in B than in A, due to the accreditation system. Students who achieve a certain TOEIC score during the spring semester can be exempted from classes during the following semester. Survey questions focused on where students study English outside classrooms. Survey B was designed to cover items not covered in Survey A.

The targeted university has three major facilities; its university library, learning commons, and global commons. The intended use and roles of these facilities according to the information provided by the targeted university's official website are detailed in Table 1.

Table 1 Intended uses and roles of the “university library,”
“learning commons,” and “global commons”

Facilities	Roles and supplied services	Location on campus
University library	<ul style="list-style-type: none"> - Learning spaces focusing on learning support services through the use of library materials (reference services, information literacy education, etc.) - PC room (56 computers) - Group learning rooms and library hall provide space for presentations and discussion 	<ul style="list-style-type: none"> - Near the bus terminal - Easy to use when students arrive and leave
		
Learning commons	<ul style="list-style-type: none"> - Focusing on active learning and learning support services the library does not provide (ICT support services, support services for Japanese/English writing and presentation) - “Co-creation space” where the students can intellectually mature by inspiring each other - Facilitating the everyday social activities necessary for mutual communication, such as discussions and presentations 	<ul style="list-style-type: none"> - At the center of the campus - Easy to visit between classes
		
Global commons	<ul style="list-style-type: none"> - Multilingual and multicultural symbiotic spaces - Meeting various needs related to any language, such as “I want to have more opportunities to practice conversations in foreign languages,” or “I want to have a private lesson on English composition.” - Facilitating a variety of activities, such as intercultural events with international students and special events involving speaking foreign languages, especially in English. - Supplying a wide variety of materials to enjoyably learn about foreign cultures and languages 	<ul style="list-style-type: none"> - At the center of the campus - Easy to visit between classes
		

3.2. General Description of t-test

The questionnaires can identify the spaces that students consider effective for English learning, but whether their selected spaces can affect their English grades will remain unknown. To address this issue, we associated individual students' survey responses with their term examination results. Student-participants were informed that their examination grades would be associated with their survey responses without any personal information, and they all agreed to the use of their records for research. Their term examination was the Test of English for International Communication (TOEIC). The spring term examination is not a formal TOEIC, as it consists of the reading section arranged by the faculty only; the fall term examination is a formal TOEIC, including the Listening and Reading Test by the Educational Testing Service. Therefore, simply comparing spring grades with fall grades is difficult. Instead, official TOEIC scores (or if not, TOEIC Bridge scores), which students had already earned by the spring term, and fall examinations grades were compared. With the statistical analysis software SPSS, we conducted a t-test to investigate if there was any significant relation between learning spaces and students' English grades.

Data were analyzed according to six English-learning categories subdivided in the questionnaire, so we could investigate the relation between grades of students who used a certain space when performing a particular type of English study and those who did not use that space for the same type of English study. Comparisons among all combinations of the following categories were conducted: between students using their "own room" and those who do not when memorizing English vocabulary/grammar; between students who use "empty classrooms" and those who do not when working on English exercises or practice tests such as the TOEIC; and between students who use the learning commons and those who do not when doing English listening practice. In addition, campus facilities such as the university library, "learning commons," and "global commons" were integrated and analyzed in the overall category of "university facilities."

4. Results

4.1. Results of Survey

Survey A showed that the most used place for English study was “your own room” (freshmen 98%, sophomores 98%), the second was the “university library” (freshmen 67%, sophomores 84%), and the third was “train, bus, car” (freshmen 57%, sophomores 60%).

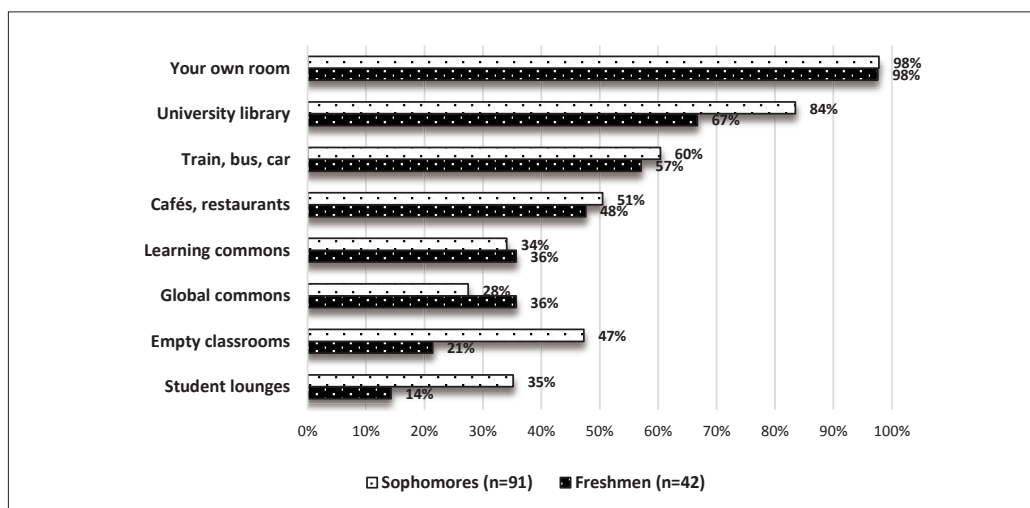


Figure 2 Places used for English study (from survey A)

According to Figure 2, first-year students use the university library less often than second-year students, but first-year students may not have been accustomed to the university library, since Survey A was conducted at the end of the spring semester. The same assumption can be applied to “empty classrooms” and “student lounges.”

For the next item, “Please select the place that you found effective for your English learning,” the most selected was “university library” (freshmen 86%, sophomores 86%), the second was “your own room” (freshmen 85%, sophomores 80%), and the third was “learning commons” (freshmen 73%, sophomores 68%) (See Table 2). The percentage of those choosing “university library” as the most efficient place for English study exceeded the percentage choosing the “university library” as the most selected place for English

study. On the other hand, the percentage of those choosing “your own room” as the most efficient place for English study was below the percentage of those choosing “your own room” for the most selected place for English study.

Overall, the results of Survey A suggested that every place was seen as efficient, to a greater or lesser degree, since each (except for “empty classrooms” among freshmen) received a response exceeding 50%. However, to examine this point further, Survey B investigated the places viewed as efficient for specific kinds of study.

Table 2 Efficient places for English study (from survey A)

Study Places	Freshmen	Sophomores
Empty classrooms	33% (n = 9)	61% (n = 41)
Train, bus, car	54% (n = 24)	56% (n = 55)
Cafés, restaurants	60% (n = 20)	58% (n = 45)
Global commons	63% (n = 16)	79% (n = 24)
Student lounges	67% (n = 6)	59% (n = 32)
Learning commons	73% (n = 15)	68% (n = 31)
Your own room	85% (n = 41)	80% (n = 88)
University library	86% (n = 28)	86% (n = 76)

The 125 valid responses to the free description section in Survey A showed that the students seemed to need “a quiet place where they can totally concentrate” and “sufficient materials supporting self-study,” as well

as “an environment for listening and speaking (where they can speak out loud).” Therefore, a new question was created in Survey B to identify the elements desired by the students in their English learning environment.

The respondents were asked to select 5 elements out of 11 as the most strongly desired for their English-language study environment. Figures 3 and 4 display the results in a cumulative bar chart. Although the priorities vary depending on the students' year, on the whole, regardless of the grade level, “being able to concentrate (without activities that divert attention from study)” was the most selected, followed by “quiet,” “personal space (carrels, desks with privacy divider, etc.),” and “comfortable air-conditioning.” Among these three elements, both “being able to concentrate (without activities that divert attention from study)” and “quiet” tend not to occur in “your own room,” which can also be derived from the free descriptions below.

[Sophomores]

- I used to do English assignments in my room, but I could not concentrate because there were too many distractions.
- I can concentrate at my place only if I am really forced to because I live by myself without being monitored by my parents.
- I often have trouble concentrating in my room because I am all by myself, surrounded by various distractions such as the TV and my smartphone.
- When comparing my room and the university library, I can concentrate more in the latter place because it is really quiet with plentiful materials.
- I wish I had a place to study more because I often cannot concentrate at my house due to distractions.
- It is not a good idea for me to use my room when I study because I cannot concentrate with all the distractions around, and I cannot help using items such as my smartphone and game system. I cannot stay focused because my room is basically a place to be relaxed.

[Freshmen]

- When I study English in my room, I can manage to concentrate but there are distractions, and also I cannot consult with other people and get help with my studying.

- I can concentrate on doing homework in my house, but I cannot keep concentrating when I have to do assignments that require long-term concentration, such as a full-length TOEIC practice test, because there are distractions such as the TV and my smartphone.
- I often have trouble concentrating in places like my house where there are lots of distractions, but I think I can study more efficiently in environments such as the library where many people are studying.
- It is easier for me to study in the library than at home because the library is quiet with other people studying around me.
- When I study English outside classrooms, my concentration does not last long in an environment with the TV and my smartphone.

The total percentage of students desiring “quiet” in their study areas exceeded 80%, but at the same time, “people studying around” reached approximately 40% among both freshmen (Figure 3) and sophomores (Figure 4). It seems that students require a quiet environment with a certain atmosphere to maintain their motivation, and the experience of other people also studying nearby. Similar comments were found in the free description: “I can concentrate better with the others nearby than being all by myself,” “I think quietness is important, but sometimes I couldn’t concentrate when it was too quiet, so I felt the best place is a quiet place, not a place without any sounds.”

On the whole, no significant differences between freshmen and sophomores were found, but slightly higher percentages were observed in the responses of freshmen for “people studying around,” “sufficient materials,” and “available PCs.” The percentages of sophomores selecting “desks and chairs suitable for study,” “spaces for speaking practice,” and “somebody who I can consult with” exceeded those of the freshmen.

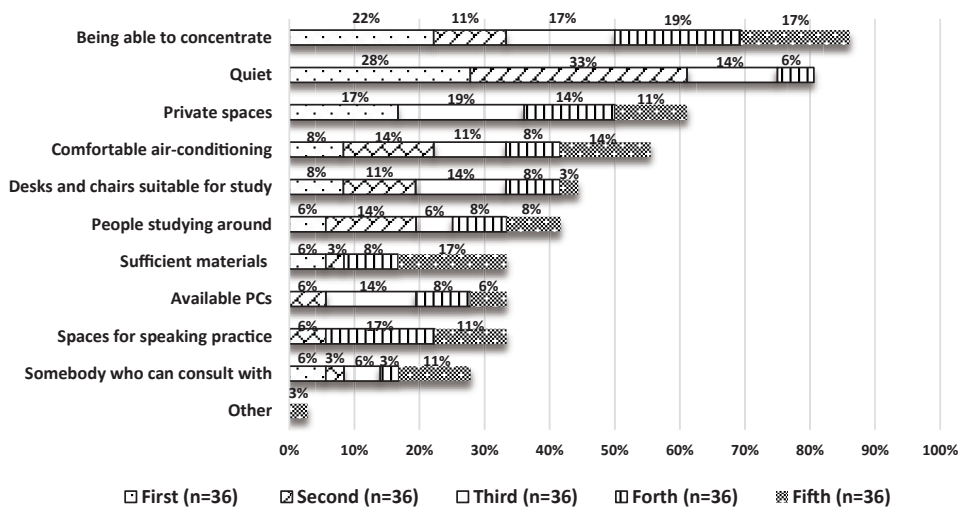


Figure 3 Elements desired by students for their English study environment (freshmen) (from survey B)

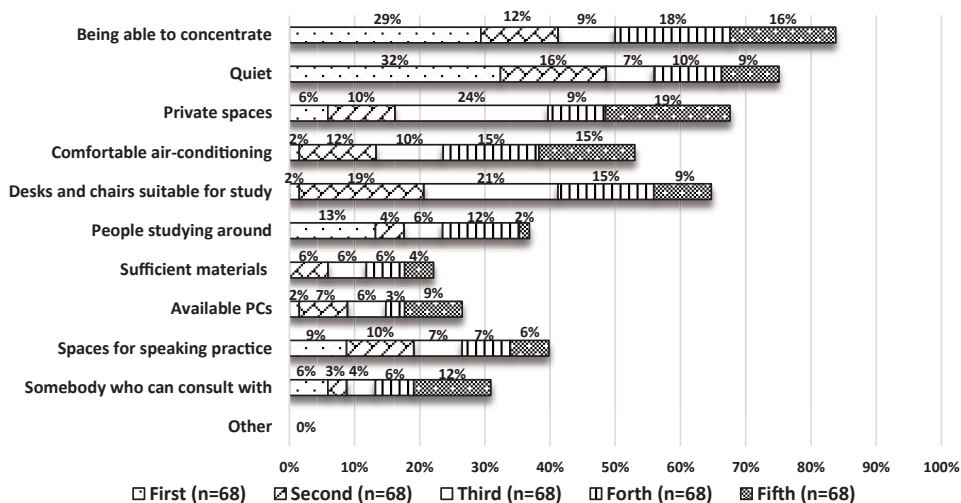


Figure 4 Elements desired by students for their English study environment (sophomores) (from survey B)

The next item, “English learning,” was subdivided into six categories: “memorizing English vocabulary/grammar,” “working on English exercises or practice tests such as TOEIC,” “English listening practice,” “English conversation, pronunciation, or presentation practice,” “reading comprehension (extensive reading, intensive reading),” and “English

composition.” The respondents were asked to select the place or places they found most suitable for each category of English learning. The results are shown in Figures 5 and 6. Regardless of the academic year, the most selected place for “memorizing English vocabulary/grammar” was “your own room,” followed by “train, bus, car,” but it can be assumed that “train, bus, car” was not deemed effective for other types of English study.

Similar comments were seen in the free description section, such as “studying for a short time on public transportation like buses and subways improved my power of concentration and memorization” and “I realized that the best

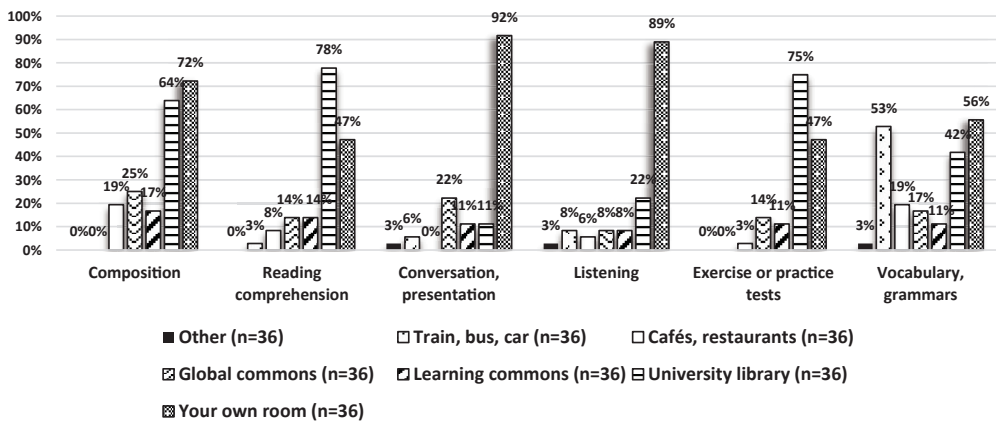


Figure 5 Places effective for each type of English study (freshmen) (from survey B)

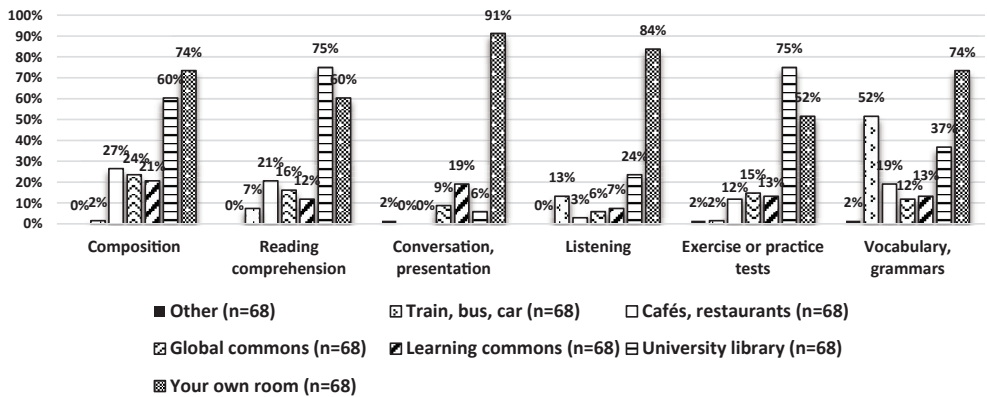


Figure 6 Places effective for each type of English study (sophomores) (from survey B)

place to memorize words would be on the train by making use of that travel time.”

Overall, it is clear that “your own room” was considered an effective place at a certain level (more than 47%) for every type of learning, but above all, this study location was seen to be overwhelmingly popular for “English listening practice” and “English conversation, pronunciation, or presentation practice.”

【Sophomores】

- I found that no study environment outside the classroom is suitable for English pronunciation practice. Even in a private study room at the university library, which did not have soundproofed walls, it was difficult for me to tell if my pronunciation was correct or not because I had to practice it in a whisper.
- In my opinion, for practice in improving your pronunciation, such as shadowing training, having your own place where you can practice aloud is the most suitable. Actually, when I prepared an assignment by memorizing and reciting English passages, I practiced in my house with a loud voice without any hesitation, which led to a good result.

【Freshmen】

- I think it would be helpful if there were headphones available in the PC rooms on campus because my English assignments in the fall semester were mainly for the improvement of my listening ability.
- I think I would be able to work on speaking assignments with all my strength if there were soundproofed rooms where an individual student could practice speaking aloud without worrying about other people being around. I feel shy about practicing out loud in the presence of other people.

More than 75% of students (both freshmen and sophomores) selected the university library as a place that was effective for “working on English exercises or practice tests such as TOEIC” and “reading comprehension (extensive reading, intensive reading)”; this was greater than the percentage choosing “your own room.”

4.2. Results of t-test

Below are four sets of results by t-test with significant interrelation between students' grades and learning spaces.

1. To ascertain any difference between TOEIC scores of students who used "university facilities" (82 students) and those who did not (22 students) when "working on English exercises or practice tests such as the TOEIC," an independent sample t-test was conducted. A significant difference was observed ($t = -2.063$, $df = 201$, $p = <.05$). This result and the mean indicate that students who used university facilities (446.22) when working on English exercises or practice tests tended to earn higher TOEIC scores than those who did not use university facilities (410.23).
2. To ascertain any difference between TOEIC listening scores of students who used university facilities (82 students) and those who did not (22 students) when "working on English exercises or practice tests such as the TOEIC," an independent sample t-test was conducted. A significant difference was observed ($t = -2.155$, $df = 102$, $p = <.05$). This result and the mean indicate that students who used university facilities (258.35) when working on English exercises or practice tests tended to earn higher scores on the TOEIC listening section than those who did not use university facilities (234.55).
3. To ascertain any difference in improved scores from spring to fall term on the TOEIC listening section between students who used the global commons (7 students) and those who did not (97 students) when conducting English listening practice, an independent sample t-test was conducted. A significant difference was observed ($t = -3.365$, $df = 11.634$, $p = <.05$). This result and the mean indicate that students who used the global commons (108.43) when conducting English listening practice tended to improve their TOEIC listening scores more than those who did not use the global commons (63.62).
4. To ascertain any difference between TOEIC listening scores of students who used the "global commons" (25 students) and those who did not (79 students) when working on English composition, an independent sample t-test was conducted. A significant difference was observed ($t = -2.516$, $df = 55.765$, $p = <.05$). This result and the mean indicate that students who

used the global commons (270.40) when working on English composition tended to earn higher scores on the TOEIC listening section than those who did not use the global commons (247.91).

5. Discussions

5.1. Survey on Places for English Learning

Students' own rooms appeared to be overwhelmingly popular (Figure 2) among the options presented as potential English learning places, and the university library seemed to be the place that most students selected as the most effective environment (Table 2) when the term "English learning" was not categorized any further. However, after we subdivided English learning into six categories, it appeared that students distinguished the places they used for each type of learning (Figures 5 and 6). By analyzing the responses to "elements desired by students for their English learning environment" and the answers in the free description section (33 valid responses from freshmen, 59 from sophomores), certain reasons for distinguishing the places can be extracted. First, "being able to concentrate (without activities that divert attention from study)" and "quiet" were the top two responses selected (Figures 3 and 4), and it is clear that these two elements were not likely to be included in "your own room" when reviewing students' comments made in the free description section. Therefore, it seems reasonable to assume that the university library would tend to be selected for "working on English exercises or practice tests such as the TOEIC" and "reading comprehension (extensive reading, intensive reading)," both of which require long-term continuous concentration (Figures 5 and 6).

Second, 30% to 40% of respondents chose "spaces for speaking practice" as an element needed in their English learning environment (Figures 3 and 4). Since there are several facilities on campus that comprise "spaces for speaking practice," such as the learning commons or global commons, it was assumed that the students would use these for practicing speaking out loud. However, "your own room" was overwhelmingly selected for the place for "English listening practice" and "English conversation, pronunciation, or presentation practice" (Figures 5 and 6). We believe that one reason for this

is the lack of equipment and facilities elsewhere in the university, but at the same time, the psychological factor of feeling shy about speaking in front of others could also be an issue.

Third, “train, bus, car,” which appeared to be less effective than other places in Table 2, was the second most selected place in Figures 5 and 6, followed by “your own room,” for memorizing English vocabulary and grammar. The comments made in the free description section show that public transportation is considered effective for the type of learning that requires short, sharp concentration, such as that required for memorizing English vocabulary and grammar.

The implications can be summarized as follows:

1. Students distinguish locations they use for several types of English study.
 - a. They tend to choose the university library, which enables them to concentrate without activities that divert attention from study and offers a quiet space when they need long-term concentration.
 - b. Although “spaces for speaking practice” accounted for 30-40% of elements desired for English study environments, “your own room” was overwhelmingly more popular for English listening, conversation, pronunciation, or presentation practice than the university facilities that provide such elements (e.g., learning commons or global commons).
 - c. “Train, bus, car” was the second most selected location, followed by “your own room,” for memorizing English vocabulary and grammar.
2. Students distinguish locations they used for several types of English study, by considering the practical and psychological effects of the space on their learning process. How students distinguished locations for different types of studies did not necessarily match the university’s intended uses and roles for the same locations.
3. The environment that freshmen find the most effective for different types of English study is not likely to change as they progress from the first to the second year.

5.2. Students’ English Grades

The t-test results show the following:

1. Students who used university facilities when working on English exercises or practice tests such as the TOEIC tended to earn higher average TOEIC scores and TOEIC listening scores than those who did not use university facilities.
2. Students who used the global commons when conducting English listening practice and working on English composition tended to improve their TOEIC listening scores from spring to fall semester more than those who did not use the global commons, and earned higher average scores on the TOEIC listening section.

According to the questionnaire results, the locations students considered effective for memorizing English vocabulary/grammar were “your own room” and “train, bus, car.” Students preferred their own room overwhelmingly for English listening practice and English conversation, pronunciation, or presentation practice. However, the results of the t-tests did not reveal any significant relation between these variables. As for the university library, most selected it as an effective place for working on English exercises or practice tests and reading comprehension (extensive reading, intensive reading). Again, the results of the t-tests did not show any significant relation between these variables. However, when the t-test was performed for university facilities including the library, the learning commons, and the global commons, a significant statistical relation was found between the average TOEIC scores of students who used university facilities and those who did not when working on English exercises or practice tests.

These t-tests also showed that students who used the global commons when doing English listening practice tended to improve their TOEIC listening scores more than those who did not. Furthermore, students who used the global commons when working on English composition tended to score higher on the TOEIC listening section than those who did not.

Questionnaire results indicated that few students used the global commons when doing English listening practice and working on English composition. Therefore, the university should encourage students to use the global commons in order to improve their listening comprehension, and identify and reinforce the elements of the global commons as effective learning environment.

6. Conclusion

What follows are suggestions drawn from this study's findings:

- 1 As students themselves showed in their questionnaire responses and as t-tests confirmed, university facilities can play a positive role in students' English learning (TOEIC scores). This supports the finding that library use increases student success, which has been seen in several articles in North America.
- 2 Although questionnaire results did not demonstrate its effectiveness, it is likely that the global commons environment helps to improve students' English grades (TOEIC scores). As indicated in Table 1, a unique aspect of the global commons is its provision of a multilingual and multicultural symbiotic space. Presumably, its intensive services for English learning, such as the advisor bar, where staff with experience studying abroad provide advice on English study, and the reception counter, where staff help students with questions about the facility or materials, have a beneficial effect on students' English learning.
- 3 While it seems reasonable to suppose that the global commons, among other university facilities, is especially effective for improving students' English grades, questionnaire results indicated that less than 30% of students had used the global commons for their English study. Even students who used the facility chose to work on English pronunciation in their own rooms. This situation can be attributed to a failure to effectively integrate the global commons into students' campus life or to a failure to consider students' psychology, such as performance anxiety.

Considering these implications, the university should note the following recommendations when offering facilities for students' English study:

1. Study facilities should be designed according to students' psychological needs when working on each type of English study, in addition to meeting equipment needs and fulfilling practical functions.
2. Regular evaluations of students' use of facilities and their effects on English language study should be conducted to improve learning environments, by identifying any gap between facilities' intended uses

and roles and students' actual use of those spaces.

3. Since students' learning styles, attitudes, and psychological reactions established in their first year are likely to persist throughout their academic careers, guides and education about the related facilities should be provided in a careful manner, particularly for freshmen.

This study cannot prove a definite causal connection between students' English proficiency level and the learning environment. However, it does suggest that university facilities can play a crucial role in improving students' English proficiency.

We also must draw attention to the importance of classifying learning content into narrower categories, such as memorizing words, working on listening comprehension, pronunciation practice, and promoting effective spaces for each type of learning. When designing a learning environment outside the classroom, it is not a good idea to concentrate too much on the practical aspects without considering students' psychological response to the particular space.

If the university subjects its facilities and services to continuous student assessment and investigates students' psychological responses to such spaces, then alterations can be made to support sustained improvements in Japanese students' English language abilities.

In further research, we should

1. Investigate whether these trends continue in the same university in subsequent years.
2. Seek methods of university-wide investigation and analysis of learning environments by collaborating with various facilities and divisions on campus.
3. Investigate alternative methods to assess proficiency in speaking and writing English (not only listening and reading).
4. Increase the sample size.

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